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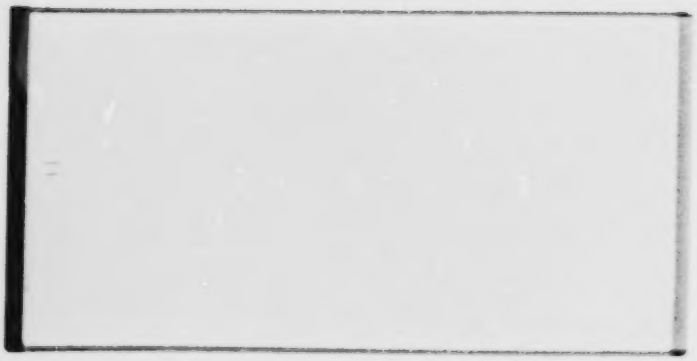

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1982 NANTICOKE FIELD STUDY: SAMPLING DATA

Report No 83-149-K

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ABSTRACT

The airborne sampling data collected during the 1982 Nanticoke Field Study are presented.

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To Mr. F.J. Kee
Director of Research

1982 NANTICOKE FIELD STUDY: SAMPLING DATA

INTRODUCTION

The Atmospheric Research Section of Ontario Hydro participated in a field study of atmospheric dispersion and chemistry carried out in the Nanticoke, Ontario area, June 1-14, 1982. The role of the Section was to coordinate and carry out the airborne sampling of the Nanticoke TGS plume and regional background air. Sulfur dioxide, ozone and sulfate (SO_4^{2-}) concentration data were collected. The Section also provided doppler acoustic sounder and LIDAR support to the study. A description of the study goals, instruments used and an account of the field activities were published earlier, Ontario Hydro Research Division Report No 82-420-K. This report presents the airborne sampling data. The data have been edited to remove known errors, the readings have been converted to units of concentration, confidence intervals have been calculated and altitude and instrument response time corrections have been applied. The results of this preliminary analysis are listed in Appendix A. Tables of the original data are available upon request. Maps of the sampling locations and a summary of the sampling days are reported in Appendix B. Appendix C lists the station's emissions data. The instrument calibration techniques and the correction factors applied to the raw data to generate the values listed in Appendix A are presented in the following.

INSTRUMENT CALIBRATION

Instrument calibration involved:

1. calculation of regression curves to relate instrument response voltage to concentration
2. calculation of confidence intervals
3. measurement of the effect of altitude
4. calculation of instrument time constants
5. calculation of lag time.

The ozone and sulfur dioxide monitors were calibrated at Ontario Hydro's Dobson Research Laboratories prior to the start of the field study. Daily calibrations were made in the field to check and maintain the initial calibration. NBS traceable standards, generated by permeation tube and gas phase titration techniques, were used. To insure accuracy, several independent calibrations were performed by a group from the Ontario Ministry of the Environment. The results, reported in Table I, showed excellent agreement.

TABLE I

RESULTS OF INDEPENDENT CALIBRATION AUDIT

Instrument	Range (ppm/V)	OME Standard (ppb)	Ontario Hydro Response (ppb)
SO_2	0.05	2	2
	0.05	252	257
	0.05	386	407
	0.1	2	4
	0.1	252	261
	0.1	386	397
	0.5	2	12
	0.5	252	283
	0.5	386	426
O_3	1	61	68
	1	195	206
	1	119	129
	1	zero air	0

The sulfate analyzer could not be calibrated due to a lack of proper standards. It was, however, calibrated prior to shipment by W.G. Coburn, C.A.P.I.T.A. Group, Washington University, St. Louis, Missouri.

1.& 2. Calculation of Regression Curves and Confidence Intervals

The calibration data were used to generate a series of regression curves defined by equation 1.

$$y = mx+b \qquad (1)$$

where y represents concentration, x represents response voltage, m is equal to the slope of the line and b is the y intercept. For each curve, a confidence interval, C.I., was calculated using equation 2/1/.

$$C.I. = \pm t_{0.25,n-1}\sqrt{1+\frac{1}{n}+\frac{(x-\bar{x})^2}{(n-1)s_x^2}}\; s_{y/x} \qquad (2)$$

where $t_{0.25,n-1}$ = t statistic for 95% band given n calibration points

n = number of calibration points used to generate the regression line

$\bar{x}$ = average of instrument response calibration points

s_x^2 = variance of response calibration points

$s_{y/x}$ = standard deviation of calibration standards about the regression line

The equations used to convert instrument response voltages to concentration and to calculate the corresponding confidence intervals, for the instruments used in the study, are listed in Table II.

TABLE II

EQUATIONS USED TO CALCULATE CONCENTRATIONS AND CORRESPONDING CONFIDENCE INTERVALS

Instrument	Range (ppm/V)	Concentration/Confidence Interval* (ppb)
SO_2	0.025	(22.8 V - 5) ± 11%
	0.050	(49.3 V - 5) ± 5%
	0.10	(111 V +18) ± 4%
	0.50	(445 V +35) ± 6%
O_3	1.0	(950 V + 1) ± 22 ppb
SO_4		$(657 - 467\ V)^{0.579}$

*Confidence intervals calculated at 1 V and 10 V and values averaged.

3. Altitude Corrections

Instrument calibrations were carried out at ground level. As a result, it was necessary to examine and account for the effect of changes in altitude on instrument response. This was done by recording the change in instrument response to a known sample while varying the sample inlet pressure. From these results a correction factor could be calculated. The results obtained with the fast and slow sulfur dioxide analyzers are plotted in Figure 1. The relationship between concentration and altitude can be defined by equation 3.

$$\text{altitude} = m(y_{obs})^2 + b \qquad (3)$$

where y = concentration

m = slope

b = intercept

The slope, m, is defined as the change in altitude divided by the change in concentration, equation 4.

$$\text{slope } (m) = \frac{(\text{altitude} - 0)}{(y_{obs})^2 - (y_o)^2} \qquad (4)$$

Rearrangement of equation 4 yields 4a.

$$y_o = \sqrt{y_{obs}^2 - \frac{\text{altitude}}{m}} \qquad (4a)$$

Substitution of the appropriate values for m (from the calibration data), y_{obs} and altitude yields the concentration at ground level (y_o).

The ozone analyzer was not affected by altitude and hence no corrections were required.

The sulfate analyzer could not be tested, however, a correction suggested by Coburn was used, equation 5.

$$y_o = (8.229 \times 10^{-5} \times \text{altitude (meters)} + 0.9554)^{0.6} \times y_{obs} \qquad (5)$$

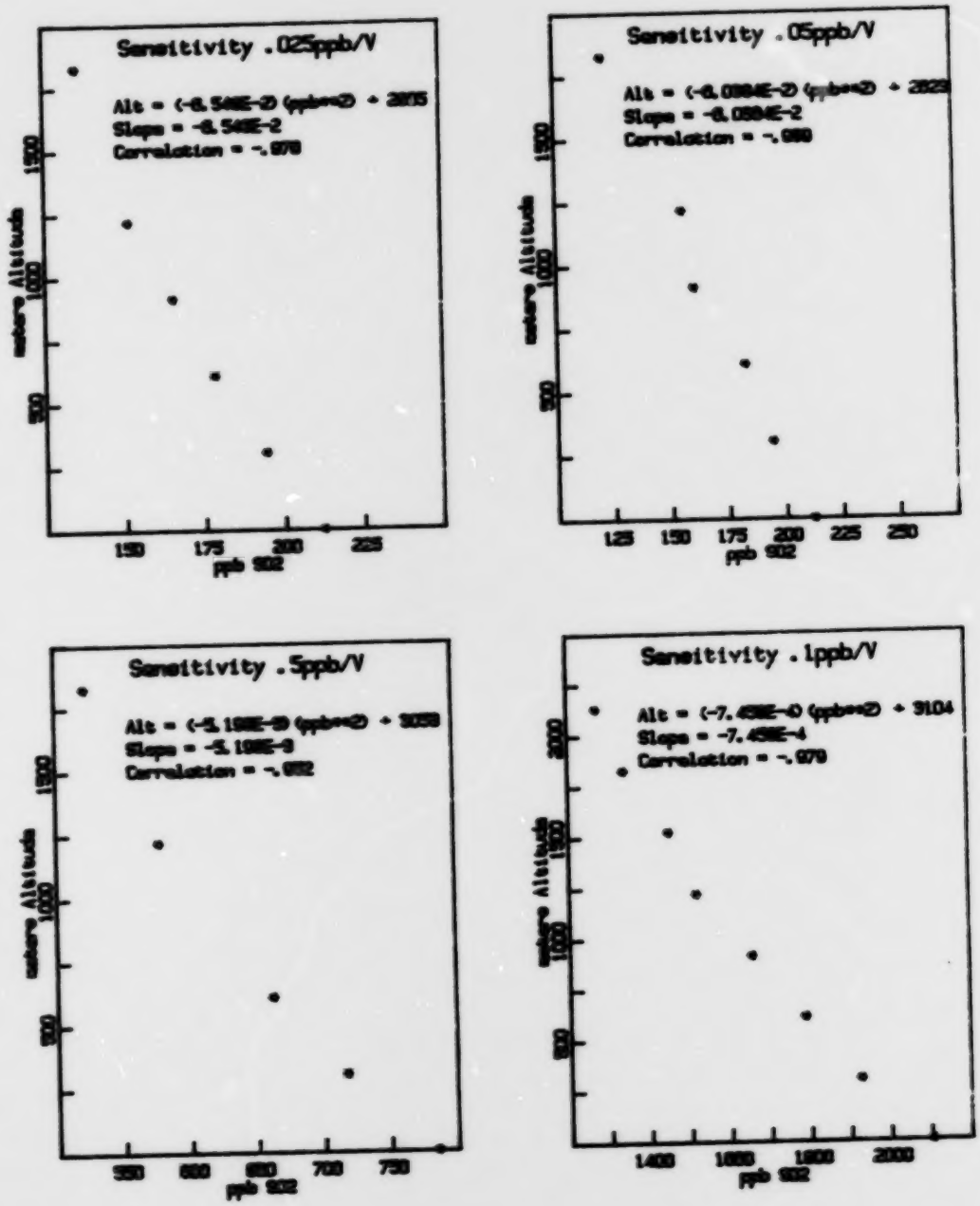
where y_o = ground-level concentration.

4. Instrument Time Constant, τ

In addition to an altitude correction, the instrument time constant must be considered. The time constant, τ, is the time required by an instrument to respond to 63.2% of a change in sample input. τ is generally determined experimentally. It is an important parameter when one realizes that 2 τ periods are required to show 86% of a change and 5 τ periods to reflect 99.3% of the change.

FIGURE 1

Altitude Effects : Sulphur Analyzer Tests



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The effect is corrected by a simple approximation to the apparent response deviation caused by τ. The correction is based upon a centered time difference technique.

$$y_{corr} = y_{obs} + \tau \left[\frac{(y_{obs}+1) - (y_{obs}-1)}{2(\Delta t)} \right] \qquad (6)$$

The following time constants were determined experimentally:

Sulfur dioxide, ranges 0.25 and 0.5 V	= 114 s
Sulfur dioxide, ranges 1.0 and 5.0 V	= 10 s
Sulfate	= 2 s
Ozone	= 2 s

5. Time Lag Effect

Lag time is the time required by an instrument to register a response to a change in sample input. It does not affect the value of the results but it must be considered when readings from different instruments are compared as a function of time. The correction involves subtraction of the lag time, ϕ, from the experimentally measured concentrations,

$$y_{corr} = y_{t-\phi} \qquad (7)$$

The following time constants were determined experimentally:

Sulfur dioxide, ranges 0.25 and 0.5 V	= 12 s
Sulfur dioxide, ranges 1.0 and 5.0 V	= 5 s
Sulfate	= 2 s
Ozone	= 0.5 s

ACKNOWLEDGEMENT

The preparation and execution of the air sampling portion of the field study required the participation of many members of the Atmospheric Research Section of Ontario Hydro. Involved were:

T. Jarv - instrument consultant
B. Handy - instrument calibration, outfitting of helicopter, air sampling

Approved:

D. Harrison
Manager
Chemical Research Department

AK:PK/mf

Submitted:

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P. Klazek
Technologist
Atmospheric Research Section

REFERENCE

CROW, E.L., F.A. Davis, M.W. Maxfield; Statistics Manual, Dover Publications Inc, New York (1960) p 163.

APPENDIX A

SAMPLING DATA

Sulfur dioxide, sulfate (SO_4^{2-}) and ozone concentration data are reported. The data have been organized into runs and passes. A pass is defined as one airborne traverse during which data were collected. There were three types of passes: background, in plume and vertical spiral. Each pass is characterized by the date, type, time of initiation, mercator end points, altitude and the data collected. A run is a collection of passes which are generally related by day or type. Data are given as a function of time and distance (or altitude for vertical spirals). Eight runs are reported, each consisting of 2 to 20 passes. The passes during which hydrocarbon or PAN samples were collected are noted.

1982 NANTICOKE FIELD STUDY

RUN 1
PASS 1
TIME 14:32 EST
START 567200E,4746200N

JUNE 7,1982
BACKGROUND 12 KM DOWNWIND
VARIABLE ALTITUDE
END 484300E,4732900N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
2	61	229			116
61	1846	229	29		105
122	3697	229	<2		
183	5539	229	2		85
244	7385	381	2		70
305	9231	457	<2		120
366	11078	457	2		69
427	12924	457	<2		127
488	14770	457	<2		175
549	16616	457	<2		
610	18463	355	2		103
671	20309	229	6		
732	22155	229	2		80
792	23971	229	2		51
853	25819	229	4		155
914	27664	229	<2		186
975	29510	229	4		141
1036	31356	229	<2		143
1097	33202	348	<2		
1158	35049	457	<2		118
1219	36895	457	2		
1280	38742	457	2		84
1341	40588	457	<2		81
1402	42434	457	<2		108
1463	44280	457	<2		107
1524	46127	457	<2		106
1585	47973	302	<2		104
1646	49819	229	<2		
1707	51665	229	<2		76
1768	53512	229	<2		
1829	55358	229	<2		125
1890	57204	229	<2		107
1951	59051	229	<2		150
2012	60897	341	<2		180
2103	63651	457	<2		137
2164	65497	457	<2		143
2225	67344	457	<2		127
2286	69190	457	111		177
2347	71036	457	<2		128
2408	72882	421	79		87
2469	74729	267	<2		
2530	76575	229	<2		150
2591	78421	229	<2		159
2652	80268	229	<2		156
2713	82114	229	<2		146
2774	83960	229	<2		

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 1
PASS 2
TIME 15:34 EST
START 484000E,4734000N

JUNE 7,1982
BACKGROUND 12 KM DOWNWIND
VARIABLE ALTITUDE
END 564700E,4754400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
15	477	229	7		99
76	2299	229	2		208
137	4024	229	2		148
198	6250	229	5		153
259	8175	229	<2		142
320	10101	457	3		171
381	12026	457	3		
442	13952	457	6		176
503	15878	444	<2		
564	17803	289	2		155
625	19729	229	6		155
686	21654	229	2		146
747	23580	229	<2		146
808	25505	229			154
869	27431	272	2		159
930	29356	427	2		160
991	31282	457	<2		164
1052	33207	457	2		151
1113	35133	457	2		148
1173	37026	419	2		161
1234	38953	264	5		147
1295	40877	229	<2		171
1356	42803	229	<2		160
1417	44728	229	<2		157
1478	46654	229	2		148
1539	48579	229	<2		154
1600	50505	346	<2		162
1661	52430	457	<2		156
1722	54356	457			165
1782	56281	457			154
1844	58207	457	<2		168
1905	60132	457	<2		155
1966	62058	325	2		156
2027	63983	229	<2		149
2088	65909	229	<2		182
2149	67834	229	<2		193
2210	69760	229	<2		142
2271	71685	229	<2		150
2332	73611	229	<2		175
2393	75537	229	2		145
2454	77462	229	2		160
2515	79388	229	2		141
2576	81313	229	2		164
2637	83239	229	<2		

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 2
PASS 1
TIME 13:59 EST
START 586800E,4745600N

JUNE 8,1982
INPLUME 8 KM DOWNWIND
305 m ALTITUDE
END 578500E,4746700N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
2	74		98		
12	447		131		
22	819		93		
32	1191		116		
42	1563		70		
52	1935		121		
62	2307		84		
72	2679		66		
82	3051		103		
92	3423		80		
102	3796		84		
112	4168		72		
122	4540		59		
132	4912		59		
141	5247		84		
152	5656		93		
161	5991		59		
171	6363		71		
181	6735		113		
191	7107		79		
201	7479		95		
211	7852		75		
221	8224		66		

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 2
PASS 2
TIME 14:05 EST
START 578500E,4746700N

JUNE 8,1982
INPLUME 8 KM DOWNWIND
610 m ALTITUDE
END 598300E,4743500N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
2	68		62	7	
12	407		73		
22	745		53	7	111
32	1084		71	7	111
42	1423		53	7	106
52	1762		57	7	110
62	2101		49	7	109
72	2439		66		113
82	2778		36	7	118
92	3117			7	116
102	3456		104	7	120
112	3795		72	7	127
122	4133		57	7	138
132	4472		66		
141	4777		58	7	
151	5150		124	7	
161	5455		58	7	95
171	5793		58	7	85
181	6132		89	7	90
191	6471		66		99
201	6810		66	7	99
211	7149		39	7	90
221	7487		75	7	90
231	7826		86	7	92
241	8165		58	7	75
251	8504		36		70
261	8843		66		87
271	9181		44	7	
281	9520		99	7	
291	9859		59	7	66
301	10198		91	7	65
311	10537		181		85
321	10875		139	7	19
331	11214		246	7	24
341	11553		264	7	30
351	11892		322	7	30
361	12231		267	7	28
371	12569		248		27
381	12908		240		23
391	13247		262	7	24
401	13586		262		27
411	13925		240	7	
421	14263		253	7	
431	14602		306	7	22
441	14941		159		19
451	15280		276	7	20
461	15619		244	7	18
471	15957			7	24
480	16262		247	7	19
490	16601		175		25
500	16940		154	7	39
510	17279		196	7	27
520	17618		170	7	29
530	17956		148	7	29
540	18295		139	7	40
550	18634		98	7	
560	18973		144		
570	19312		98	7	30
580	19650		106	7	30
590	19989		115	7	32

Hydrocarbon sample (#260) collected during pass.

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 2
PASS 3
TIME 14:17 EST
START 598300E,4743500N

JUNE 8,1982
INPLUME 8 KM DOWNWIND
763 m ALTITUDE
END 578500E,4746700N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
2	65		40	<1	
12	391		<36	<1	
22	716		50	<1	
32	1042		50	<1	
42	1368		<36	<1	
52	1693		40		
62	2019		<36	<1	
72	2344		40	<1	
82	2670		<36	<1	
92	2996		<36	<1	
102	3321		<36	<1	
112	3647		<36		
122	3972		<36	<1	
132	4298		44	<1	
141	4591		44	<1	
152	4949		44	<1	
161	5242		40	<1	
171	5568		40		
181	5893		76	<1	
191	6219		54	<1	
201	6545		64	<1	
211	6870		39	<1	
221	7196		107	<1	
231	7521		50		
243	7912		<36	<1	
253	8238		58	<1	
263	8563		72		
273	8889		<36	<1	
283	9214		<36	<1	
293	9540		76		
303	9866		50	<1	
313	10191		<36		
323	10517		41	<1	
333	10842		103	<1	
343	11168		<36	<1	
353	11494		71		
363	11819		<36	<1	
373	12145		71	<1	
383	12470		180	<1	
393	12796		231	<1	
403	13122		246	<1	
413	13447		1084		
423	13773		782	1	
433	14098		862	1	
443	14424		450	1	
453	14750		1015	1	
463	15075		1768	1	
472	15368		1039		
482	15694		2099	1	
492	16019		2211	1	
502	16345		547	1	
512	16671		76	1	
522	16996		84	<1	
532	17322		407		
542	17647		119	<1	
552	17973		55	<1	
562	18299		<36	<1	
572	18624		<36	<1	
582	18950		40	<1	
596	19406		<36		
606	19731		44	<1	
616	20057		40	1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 2
PASS 4
TIME 14:32 EST
START 582700E, 4754400N

JUNE 8, 1982
INPLUME 16 KM DOWNWIND
610 m ALTITUDE
END 603100E, 4744700N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
5	357		138	<1	48
14	1001		117		25
24	1716		133	<1	42
33	2359		135	<1	45
43	3074		142	<1	44
52	3717		138		41
62	4432		146	<1	42
72	5147		117	<1	40
81	5790		162	<1	39
91	6505		129		
100	7148		144	<1	44
110	7863		154	<1	38
119	8507		200		32
129	9221		244	<1	23
139	9936		347	<1	18
148	10580		221	<1	41
158	11294		248		30
167	11938		264	<1	
177	12653		165	<1	
187	13367		135	<1	40
196	14011		151		42
206	14726		141	<1	41
215	15369		165	<1	41
225	16084		177	<1	40
234	16727		225		36
244	17442		275		35
254	18157		213	<1	
263	18800		147		36
272	19443		157		48
282	20158		198	<1	55
292	20873		98	<1	66
301	21516		83		73
311	22231		80		71

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 2
PASS 5
TIME 14:41 EST
START 603100E,4744700N

JUNE 8,1982
INPLUME 16 KM DOWNWIND
763 m ALTITUDE
END 582700E,4754400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb	TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
5	394		<36								
14	1102		<36								
24	1889		53								
33	2597		52		197						
43	3384		79		122						
52	4093		37		100						
62	4880		36		159						
72	5667		38		151						
81	6375		39								
91	7162		54		122						
100	7871		79		102						
110	8658		180		73						
119	9366		241		69						
129	10153		38		129						
139	10940		47		105						
148	11649		316		28						
158	12436		251								
167	13144		299								
177	13931		293		22						
187	14718		347		<5						
196	15426		253		61						
206	16214		284		58						
215	16922		282		139						
225	17709		401		57						
234	18417		438		43						
244	19204		258								
254	19991		<36								
263	20700				<5						
272	21408		122		<5						
282	22195		41		22						

Hydrocarbon sample (#254) collected during pass.

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 3
PASS 1
TIME 10:25 EST
START 569800E,4737300N

JUNE 9,1982
INPLUME 10 KM DOWNWIND
229 m ALTITUDE
END 567000E,4746900N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
			84		
4	173		<36		
8	346		62		
12	519		68		
16	693		44		
20	866		<36		
24	1039		54		
28	1212		66		
32	1385		<36		
38	1645		68		
42	1818		36		
46	1991		81		
50	2165		58		
54	2338		53		
58	2511		68		
62	2684		58		
66	2857		62		
70	3030		53		
74	3203		68		
78	3377		36		
82	3550		53		
86	3723		53		
90	3896		49		
94	4069		59		
98	4242		99		
102	4416		71		
106	4589		<36		
110	4762		86		
114	4935		58		
118	5108		49		
122	5281		44		
126	5455		49		
130	5628		59		
133	5758		53		
138	5974		49		
169	7316		<36		
173	7489		<36		

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
177	7662		108		
181	7835		<36		
185	8009		<36		
203	8788		<36		
207	8961		40		
211	9134		<36		
215	9307		54		
219	9481		<36		
223	9654		40		
227	9827		<36		

BLANKS ARE MISSING DATA

RUN 3
PASS 2
TIME 10:31 EST
START 567000E, 4746900N

JUNE 9, 1982
INPLUME 10 KM DOWNWIND
458 m ALTITUDE
END 569800E, 4737300N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
2	78		49	<1	
6	233		<36	<1	
10	389		<36	<1	
14	545		44	<1	
18	700			<1	
60	2335		44		
64	2490		<36		
68	2646		95		
72	2802		41		
76	2957		44	<1	
80	3113		<36	<1	
84	3268		<36	<1	
88	3424		<36	<1	
92	3580		<36	<1	
96	3735		<36	<1	
100	3891		50	<1	
104	4047			<1	
110	4280		<36		
114	4436		40		
118	4591		40		
122	4747		50	<1	
126	4903		40	<1	
130	5058		<36	<1	
133	5175		<36	<1	
138	5370		50	<1	
141	5486		<36		
146	5681		<36	<1	
149	5798		<36	<1	
153	5953		<36	<1	
157	6109		<36	<1	
161	6265		<36	<1	
165	6420		<36	<1	
169	6576		<36		
173	6732		<36		
177	6887		<36		
181	7043		<36	<1	
185	7198		<36	<1	
189	7354		114	<1	
193	7510		351	<1	
197	7665		862	<1	
201	7821		1223	<1	
205	7977		635	1	
209	8132		1184	1	
213	8288		1284	1	
217	8444		838	1	
221	8599		735	1	
225	8755		378		
229	8911		142		
233	9066		166		
237	9222		59		
241	9377		<36	<1	
245	9533		164	<1	
249	9689		115	<1	
253	9844		89	<1	
257	10000			<1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 3
PASS 3
TIME 10:37 EST
START 569800E,4737300N

JUNE 9,1982
INPLUME 10 KM DOWNWIND
763 m ALTITUDE
END 567000E,4746900N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
2	30		49	<1	
6	271		37	<1	
10	452		<36	<1	
14	633		40	<1	
18	814		<36	<1	
22	995		82	<1	
26	1176		<36	<1	
30	1357		40	<1	
34	1538		<36	<1	
38	1719		50		
42	1900		<36	<1	
46	2081		40	<1	67
50	2262		<36		67
54	2443		<36		70
58	2624		<36		71
62	2805		<36		74
66	2986		50	<1	73
70	3167		<36	<1	72
74	3348		<36	<1	75
78	3529		40	<1	78
82	3710		40	1	77
86	3891		<36	<1	79
90	4072		60	<1	79
94	4253		40	<1	80
98	4434		<36	<1	46
102	4615		276	<1	71
106	4796		492	<1	50
110	4977		625		46
114	5158		635		54
118	5339		752		52
122	5520		832		45
126	5701		505	1	29
130	5882		627	1	39
133	6018		536	1	79
138	6244		252	1	58
141	6380		84	1	75
146	6606		<36	1	32

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
149	6742		217	1	54
153	6923		220	1	68
157	7104		113	1	
161	7285		180	1	
165	7466			1	
169	7647		54	1	
173	7828		36		
177	8009		33		
181	8190		36		65
185	8371		36	1	65
189	8552		<36	1	70
193	8733		40		70
197	8914		36	1	74
201	9095		36	1	73
205	9276		49	<1	75
209	9457		<36	1	77
213	9638		36	1	79
217	9819		44	1	77
221	10000		36	<1	77

BLANKS ARE MISSING DATA

JUNE 9,1982
INPLUME 10 KM DOWNWIND
915 m ALTITUDE
END 569800E,4737300N

RUN 3
PASS 4
TIME 10:42 EST
START 567000E,4746900N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
				<1	
5	273		<36	<1	
10	546		<36	<1	
15	820		44	<1	
20	1093		40	<1	
25	1366		52	<1	
30	1639		44		
36	1967		<36		
41	2240		56		
46	2514		<36	<1	
51	2787		40	<1	
56	3060		<36	<1	
61	3332		44	<1	
66	3607		40	<1	
71	3880			<1	
76	4153			<1	
81	4426			<1	
86	4699		40	<1	
91	4973		<36		
97	5301		<36		
102	5574		<36		
107	5847		48	<1	
112	6120		<36	<1	
117	6393		60	<1	
122	6667		<36	<1	
127	6940		49	<1	
132	7213		40	<1	
137	7486		37	<1	
142	7760		<36	<1	
147	8033		<36	<1	
152	8306		<36		
157	8579		40		
163	8907		<36		
168	9180		48	<1	
173	9454		<36	<1	
178	9727		<36	<1	
183	10000		<36	1	

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 3
PASS 5
TIME 10:47 EST
START 569800E, 4737300N

JUNE 9, 1982
INPLUME 10 KM DOWNWIND
839 m ALTITUDE
END 567000E, 4746900N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
3	179		36		
8	370		<36		
13	602		36		167
18	833		<36		163
23	1065		37	3	162
28	1296		<36	3	162
33	1528		47	3	162
38	1759		36	3	162
43	1991		49	3	162
48	2222		<36	3	163
53	2454		42	3	162
58	2685		36	3	
64	2963		<36	3	
69	3194		<36	3	
74	3426		48	3	164
79	3657		<36	3	162
84	3889		40	3	162
89	4120		<36	3	162
94	4352		40	3	161
99	4583		75	3	163
104	4815		57	3	162
109	5046		36	7	161
114	5278		89	4	161
119	5509		155	4	
124	5741		201	1	
129	5901		146	3	
135	6250		<36		162
140	6481		<36		160
145	6713		<36		160
150	6944		<36		161
155	7176		66		160
160	7407		207	4	160
165	7639		124	1	159
170	7870		<36	3	159
175	8102		<36	3	162
180	8333		<36	3	
185	8565		44	3	

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
191	8843		36	3	164
196	9074		36	3	167
201	9306		40	3	163
206	9537		36	3	162
211	9769		36	3	161
216	10000		<36	3	159

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 3
PASS 6
TIME 10:55 EST
START 560000E,4745000N

JUNE 9,1982
INPLUME 17 KM DOWNWIND
458 m ALTITUDE
END 562000E,4737800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
3	70			<1	
8	188			<1	
13	305			<1	
18	423			<1	
23	540			<1	
28	658			<1	
33	775			<1	
38	893			<1	
43	1010			<1	
48	1128			<1	
53	1245			<1	
58	1363			<1	
63	1480			1	
68	1598			<1	
73	1715			<1	
78	1833			<1	
83	1950			<1	
88	2068			<1	
93	2185			<1	
98	2303			<1	
103	2420			<1	
108	2538			<1	
113	2655			<1	
118	2773			<1	
123	2890			<1	
128	3008			<1	
133	3125			<1	
138	3243			<1	118
143	3360			<1	121
148	3478			<1	121
153	3595			<1	98
158	3713			<1	146
163	3830				121
168	3948				153
173	4065			<1	139
178	4183			<1	126
183	4300			<1	150
188	4418			<1	123
193	4535			<1	125
198	4653			<1	91
203	4770			<1	167
208	4888			<1	150
213	5005				
218	5123				
224	5264			<1	154
229	5381				76
234	5499				108
239	5616				22
244	5734			<1	34
249	5851			<1	41
254	5969			1	80
259	6086			<1	
264	6204			1	
269	6321			1	
274	6439			1	
279	6556			1	
284	6674			1	88
290	6815			1	142
295	6932			<1	152
300	7050			1	166
305	7167			<1	146
310	7285			<1	
318	7473				169

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 3
PASS 7
TIME 11:02 EST
START 562000E,4737800N

JUNE 9,1982
INPLUME 17 KM DOWNWIND
610 m ALTITUDE
END 560000E,4745000N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
3	82		<36	<1	
8	218		<36	<1	
13	355		52	<1	
18	491		<36	<1	
23	627		48	<1	
28	764		<36	<1	
33	900		<36	<1	
38	1036		<36		
43	1173		190		
48	1309		110	<1	
53	1445		156	<1	
58	1582		112	<1	
64	1745		<36	<1	
69	1882		<36	<1	
74	2018		42	<1	
79	2155		<36	<1	
84	2291		44	<1	
89	2427		74	<1	
94	2564		196	<1	
99	2700		364		
104	2836		684		
109	2973		1081	<1	
114	3109		1164	1	
119	3245		1263	1	
124	3382		1445	1	
130	3545		1266	1	
135	3682		931	1	
140	3818		824	1	
145	3954		480		
150	4091		343	<1	
155	4227		223	<1	
160	4364		113	<1	
165	4500		143	<1	
170	4636		423	<1	
175	4773		383	<1	
180	4909		595	<1	
185	5045		680	<1	

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
191	5209		162	<1	
196	5345		134	<1	
201	5482		94	<1	
206	5618		178	<1	
211	5754		129	<1	
216	5891		<36		
221	6027		54		
226	6164		<36	<1	
231	6300		46	<1	
236	6436		<36	<1	
241	6573		<36	<1	
246	6709		57	1	
251	6845		<36	<1	
257	7009			<1	
262	7145		<36	<1	
267	7282		<36	<1	
272	7418		48	1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 3
PASS 8
TIME 11:08 EST
START 560000E,4745000N

JUNE 9,1982
INPLUME 17 KM DOWNWIND
763 m ALTITUDE
END 562700E,4735800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
3	127		53	<1	
8	328		53	<1	
13	533		58		
18	738		84		
23	942		144		
28	1147		<36	<1	
33	1352		89	<1	
38	1557		176	1	
43	1762		148	1	
48	1967		137		
53	2172		122	<1	
58	2377		84	<1	
64	2622		<36	1	
69	2827		<36	1	
74	3032		<36		
79	3237		48		
84	3442		<36	1	
89	3647		37	1	
94	3852		<36	<1	
99	4056		235	1	
104	4261		182	1	
109	4466		<36	1	
114	4671		<36	<1	
119	4876		<36	<1	
124	5081		<36	<1	
130	5327		<36		
135	5532		<36		
140	5736		52		
145	5941		<36	<1	
150	6146		<36	<1	
155	6351		<36	<1	
160	6556		<36	<1	
165	6761		37	<1	
170	6966		<36	<1	
175	7171		<36	<1	
180	7375		74	<1	
185	7580		41	<1	
191	7826		63		
196	8031		84		
201	8236		<36		
206	8441		44	<1	
211	8646		40	<1	
216	8850		44	<1	
221	9055		<36	<1	
226	9260		83	<1	
231	9465		62	<1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 3
PASS 9
TIME 11:18 EST
START 559700E,4732800N

JUNE 9,1982
INPLUME 19 KM DOWNWIND
458 m ALTITUDE
END 557500E,4740400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
3	170		<36	<1	
8	452		<36		
13	735		<36		
18	1017		356		
23	1300		281	<1	
28	1582		262	<1	
33	1865		677	<1	
38	2148		871	<1	
43	2430		178	1	
48	2713		103	<1	
53	2995		583	<1	
58	3278		505	1	
64	3617		118	1	
69	3899		<36		
74	4182		<36		
79	4465		<36	<1	
84	4747		75	<1	
89	5030		<36	<1	
94	5312		77	<1	
99	5595		<36	<1	
104	5877		49	<1	
109	6160		51	<1	
114	6443		44	<1	
119	6725		42	<1	
124	7008		75	<1	
130	7347		37		
135	7629		49		
140	7912		44	<1	

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 3
PASS 10
TIME 11:22 EST
START 557500E,4740400N

JUNE 9,1982
INPLUME 19 KM DOWNWIND
610 m ALTITUDE
END 559700E,4732800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
3	144		809	1	
8	384		1094	1	
13	623		944	1	
18	863		522		
23	1103		396		
28	1343		427		
33	1582		360	<1	
38	1822		290	<1	
43	2062		498	<1	
48	2302		250	<1	
53	2541		538	<1	
58	2781		541	<1	
64	3069		458	<1	
69	3309		63	<1	
74	3548		<36		
79	3788		<36		
84	4028		37		
89	4268		<36		
94	4507		<36	<1	
99	4747		40	<1	
104	4987		48	<1	
109	5227		<36	<1	
114	5466		48	<1	
119	5706		48	<1	
124	5946		37	<1	
130	6234		40	<1	
135	6473		<36	<1	
142	6809		49		
147	7049		<36		
152	7289		60	<1	
157	7528		50	<1	
163	7816		49	<1	

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 3
PASS 11
TIME 11:26 EST
START 559700E,4732800N

JUNE 9,1982
INPLUME 20 KM DOWNWIND
610 m ALTITUDE
END 555900E,4746200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
3	117		44	<1	
8	311		<36		
13	506		44		
18	700		<36		
23	895		40	<1	
28	1089		<36	<1	
33	1284		<36	<1	
38	1478		<36	<1	
43	1673		<36	<1	
48	1867		<36	<1	
53	2062		<36	<1	
58	2257		<36	<1	
64	2490		<36	<1	
69	2685		<36		
74	2879		<36		
79	3074		<36	<1	
84	3268		<36	<1	
89	3463		<36	<1	
94	3657		<36	<1	
99	3852		40	<1	
104	4046		48	<1	
109	4241		235	<1	
114	4435		472	<1	
119	4630		581	<1	
124	4824		339		
130	5058		512		
135	5252		551		
140	5447		463	<1	
145	5641		306	<1	
150	5836		286	<1	
155	6030		515	<1	
160	6225		470	<1	
165	6420		415	<1	
170	6614		401	<1	
175	6809		339	<1	
180	7003		405	<1	
185	7198		426		
191	7431		439		
196	7626		291		
201	7820		432	<1	
206	8015		518	<1	
211	8209		548	<1	
216	8404		636	<1	
221	8598		616	<1	
226	8793		535	<1	
231	8987		302	<1	
236	9182		245	<1	
241	9376		320		
246	9571		344		
251	9765		361		
259	10077		223	<1	
264	10271		117	<1	
269	10466		79	<1	
274	10660		76	<1	
279	10855		139	<1	
284	11049		216	<1	
290	11282		45	<1	
295	11477		59	<1	
300	11672		37	<1	
305	11866		<36		
310	12061		42		
315	12255		46		
320	12450		<36	<1	
325	12644		40	<1	
330	12839		48	<1	
335	13034		40	<1	
340	13228		40		
345	13423		58	<1	
351	13656		44	<1	
356	13851		<36	<1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 3
PASS 12
TIME 11:34 EST
START 555900E,4746200N

JUNE 9,1982
INPLUME 20 KM DOWNWIND
763 m ALTITUDE
END 559700E,4732800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
				<1	
10	435		<2	<1	
20	871		<2		
30	1306		<2	<1	
41	1785		<2	<1	
51	2220			<1	
61	2655		<2	<1	
71	3090		<2	<1	
81	3526		<2		
91	3961		<2	<1	
102	4440		<2	<1	
112	4875		<2	<1	
122	5310		<2	<1	
132	5745		<2	<1	
142	6181		<36		
155	6747		<36		
165	7182		<2	1	
175	7617		<36	1	
185	8052		<36	1	
196	8531		<36		
206	8966		<36	<1	
216	9402		<2	<1	
226	9837		<2	<1	
236	10272		<2	<1	
246	10707		<2	<1	
257	11186		<2		
267	11621		<2	<1	
277	12057		<2	<1	
287	12492		<2	<1	
297	12927		<2	<1	
307	13363		<2	<1	
318	13841		<2		

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 3
PASS 13
TIME 11:51 EST
START 538800E,4724800N

JUNE 9,1982
INPLUME 39 KM DOWNWIND
458 m ALTITUDE
END 537700E,4753700N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
5	221			<1	
15	662			<1	
25	1104			<1	
3b	1590			<1	
4b	2031			<1	
5b	2473			<1	
81	3576			<1	
91	4018			<1	91
102	4504			<1	94
112	4945			<1	90
122	5387				84
132	5829			<1	84
142	6270			1	81
152	6711			<1	75
163	7197			<1	78
173	7639			<1	72
183	8522			<1	
203	8963			<1	
213	9405			1	49
224	9891			1	67
234	10332			1	72
244	10774				60
254	11215			1	57
264	11657			1	60
274	12098			1	66
284	12540			1	57
295	13025				59
315	13909			<1	66
325	14350			<1	
335	14792			<1	
345	15233			<1	80
356	15719				80
36a	16160				79
376	16602			<1	74
386	17043			<1	77
396	17485			<1	75
40a	17927			<1	69

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
417	18412				74
427	18854				71
437	19295			.1	74
447	19737			.1	70
457	20178			.1	64
467	20620			.1	
477	21768			.1	66
503	22210			.1	74
513	22651			<1	72
523	23093			.1	60
533	23534				56
554	24461			.1	72
564	24903			.1	71
574	25344			.1	55
584	25786			<1	65
594	26228				74
620	27376			.1	90
630	27817			.1	86
640	28259			<1	91
650	28700			<1	88

BLANKS ARE MISSING DATA

RUN 3
PASS 14
TIME 12:03 EST
START 537700E,4753700N

JUNE 9,1982
INPLUME 39 KM DOWNWIND
610 m ALTITUDE
END 537900E,4729200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb	TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
10	561			<1							
20	1121			<1							
30	1682			<1							
41	2290			<1							
51	3700			<1							
76	4261			<1							
86	4822			<1							
97	5438			<1							
122	6840			<1							
132	7401			<1							
142	7961			1							
152	8522			1							
183	10260			<1							
193	10821			1							
203	11381			<1							
213	11942			<1							
244	13680			<1							
254	14241			<1							
264	14801			1							
274	15362			1							
300	16820			1							
310	17380			<1							
320	17941			1							
330	18502			1							
361	20240			1							
371	20800			1							
381	21361			1							
391	21922			1							
422	23660			1							
432	24220			<1							

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 4
PASS 1
TIME 15:18 EST
START 578300E,4740500N

JUNE 9,1982
BACKGROUND 3 KM DOWNWIND
VARIABLE ALTITUDE
END 613200E,4746200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb	TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
2	59	152	6								
61	1814	152	7								
122	3638	152	9								
183	5443	152	8								
244	7257	152	7								
305	9071	302	7								
366	10885	457	7								
427	12700	457	7								
488	14514	457	7								
549	16328	457	3								
610	18142	401	7								
671	19956	246	9								
732	21771	152	5								
792	23555	152	4								
853	25369	152	5								
914	27184	152	5								
975	28998	152	4								
1036	30812	321	6								
1097	32626	457	5								
1158	34440	457	6								

Hydrocarbon sample (#058) collected at 457 m.

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 4
PASS 2
TIME 15:42 EST
START 613200E,4746200N

JUNE 9,1982
BACKGROUND 3 KM DOWNWIND
VARIABLE ALTITUDE
END 578300E,4740500N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
30	967	152	7		
91	2933	152	6		
152	4900	152	2		
213	6866	152	7		
274	8833	152	10		
335	10799	336	9		
396	12765	457	8		
457	14732	457	4		
518	16698	457	4		
579	18664	421	3		
640	20631	273	4		
701	22597	152	9		
762	24563	152	4		
823	26530	152	8		
884	28496	254	5		52
945	30463	448	6		57
1006	32429	457	8		56
1067	34395	457	13		53

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

Hydrocarbon sample (#256) collected at 243 m.
Hydrocarbon sample (#270) collected at 610 m.

BLANKS ARE MISSING DATA

RUN 5
PASS 1
TIME 15:55 EST
START 587700E,4740800N

JUNE 10,1982
INPLUME 11 KM DOWNWIND
458 m ALTITUDE
END 586500E,4745400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
3	91		<36	<1	59
13	394		40	<1	61
23	696		54	<1	80
33	999		<36	<1	57
43	1302		138	<1	28
53	1605		329	1	35
64	1938		107		93
74	2241		37	<1	65
84	2544		<36	<1	
94	2846		<36	<1	
104	3149		<36	<1	74
114	3452		<36		99
124	3755		40		93
135	4088		<36	<1	85
145	4391		56	<1	85
155	4693		<36	1	116

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 5
PASS 2
TIME 16:00 EST
START 586500E,4745400N

JUNE 10,1982
INPLUME 11 KM DOWNWIND
610 m ALTITUDE
END 587700E,4740800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
3	54		<36	<1	28
13	236		52	<1	37
23	417		<36	<1	38
33	599		47	<1	41
43	780		<36		48
53	962		<36	<1	56
64	1161		48	<1	61
74	1343		<36	<1	62
84	1524		<36	<1	65
94	1706		44	<1	66
104	1887		<36		
114	2069		<36	<1	
124	2250		<36	<1	76
135	2450		44	<1	73
145	2631		<36	<1	76
155	2812		<36	<1	77
165	2994		56		61
175	3175		133	<1	36
185	3357			<1	18
196	3556		106	<1	18
206	3738		188	<1	9
216	3919		235	<1	64
226	4101		175		119
236	4282			<1	
246	4464			<1	
257	4663			<1	

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 1
TIME 9:18 EST
START 571900E,4753100N

JUNE 11,1982
VERTICAL SPIRAL 15 KM DOWNWIND
VARIABLE ALTITUDE
END 571900E,4753100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb	TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
6	10		21			1353	2420		47		
67	107		22			1384	2473		47		
98	158		23								
128	234		23								
165	328		32								
201	419		31								
232	478		25								
262	516		34								
293	555		36								
347	638		26								
378	717		27								
415	794		28								
445	845		27								
489	919		28								
524	1011		42								
555	1082		21								
591	1143		40								
622	1195		29								
658	1254		29								
689	1303		39								
750	1400		31								
780	1448		31								
817	1507		32								
853	1564		33								
914	1661		33								
951	1722		39								
988	1785		44								
1030	1869		36								
1061	1948		35								
1103	2024		36								
1134	2071		58								
1164	2115		29								
1195	2160		36								
1225	2202		36								
1256	2246		36								
1286	2289		36								
1323	2362		36								

Hydrocarbon sample (#251) collected at 304 m.
Hydrocarbon sample (#254) collected at ∿2,600 m.

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 2
TIME 9:57 EST
START 571900E,4753100N

JUNE 11,1982
VERTICAL SPIRAL 15 KM DOWNWIND
VARIABLE ALTITUDE
END 571900E,4753100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
12	2568		39		
42	2507		36		
91	2406		38		
128	2312		38		
159	2266		38		
189	2274		50		
219	2204		40		
250	2172		42		
280	2142		41		
329	2081		42		
360	2042		37		
402	1989		60		
451	1926		53		
488	1880		56		
518	1841		36		
555	1794		37		
585	1756		46		
616	1717		56		
646	1679		56		
677	1639		28		
707	1601		4		
738	1562		52		
768	1524		53		
799	1485		46		
829	1446		58		
860	1407		50		
890	1369		71		
920	1339		52		
957	1301		43		
988	1270		51		
1018	1239		51		
1049	1202		50		
1079	1157		51		
1122	1093		61		
1152	1053		53		
1183	1019		53		
1213	986		53		
1244	952		52		
1274	919		52		
1305	886		53		
1335	854		54		
1366	821		54		
1402	783		64		
1433	748		50		
1475	695		42		
1506	655		48		
1536	617		18		
1567	578		79		
1597	540		70		
1628	500		58		
1658	462		51		
1701	418		57		
1731	387		65		
1762	355		67		
1792	325		67		
1823	295		58		
1853	269		48		
1884	243		58		
1914	219		59		
1945	191		58		
1975	166		58		
2006	142		58		
2036	124		70		
2079	96		59		
2109	78		70		
2140	58		61		
2170	39		60		
2201	29		70		
2231	1		59		

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 3
TIME 11:56 EST
START 583700E,4741800N

JUNE 11,1982
BACKGROUND 8 KM DOWNWIND
VARIABLE ALTITUDE
END 613200E,4746200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
6	180	152	<2		
18	540	152	<2		
30	900	152	<2		
42	1290	152	<2		
55	1650	152	<2		
72	2190	152	<2		
85	2551	152	<2		
98	2941	152	<2		
110	3301	152	<2		
122	3661	152	<2		
134	4021	152	2		
146	4381	152	12		
158	4741	152	3		
171	5131	152	3		
187	5491	161	3		
195	5851	196	3		
207	6211	231	15		
219	6571	265	4		
232	6961	303	<2		23
244	7322	338	13		28
256	7682	372	4		28
268	8042	408	<2		33
280	8402	447	12		61
293	8792	458	4		42
305	9152	458	4		43
317	9512	458	4		50
329	9872	458	<2		
341	10232	458	3		
354	10622	458	3		38
366	10982	458	14		48
378	11342	458	4		39
390	11702	458	<2		33
402	12063	458	3		35
415	12453	458	3		23
427	12813	458	3		36
439	13173	458	3		40
451	13533	458			35
463	13893	458			27
475	14253	458	2		
488	14643	434	2		
500	15003	399	22		46
512	15363	364	12		40
524	15723	330			42
536	16083	295	2		17
549	16473	257	2		38
561	16834	222	2		
573	17194	187	<2		17
585	17554	152	2		23
597	17914	152	2		6
610	18304	152	2		
622	18664	152	17		
634	19024	152	3		87
646	19384	152	3		100
658	19744	152	3		95
671	20134	152	12		107
683	20494	152	<2		97
695	20854	152	3		90
707	21215	152	14		93
719	21575	152	15		91
732	21965	152	5		100
744	22325	177	<2		75
756	22685	210	14		
768	23045	243	2		
780	23405	276	4		
792	23765	309	4		
817	24515	378	<2		
829	24875	411	3		
841	25235	444	3		
853	25595	457	<2		
866	25986	457	2		
878	26346	457	<2		
890	26706	457	<2		
902	27066	457	<2		
914	27426	457	2		

BLANKS ARE MISSING DATA

RUN 6
PASS 3 ...CONTINUED
TIME 11:56 EST
START 583700E,4741800N

JUNE 11,1982
BACKGROUND 8 KM DOWNWIND
VARIABLE ALTITUDE
END 613200E,4746200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
927	27816	457	12		
939	28176	457	<2		5
951	28536	457	2		37
962	28896	457	2		8
975	29256	457	2		<5
988	29646	457	2		

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 4
TIME 12:15 EST
START 613200E,4746200N

JUNE 11,1982
BACKGROUND 8 KM DOWNWIND
VARIABLE ALTITUDE
END 583700E,4741800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb	TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
6	190	152	2								
37	1110	152	12								
85	2551	152	4								
116	3481	152	5								
146	4381	152	15								
177	5311	152	5								
219	6571	152	14								
250	7502	152	7								
293	8792	291	<2								
335	10052	433	<2								
366	10982	457	<2								
396	11883	457	3								
427	12813	457	12								
457	13713	457	4								
488	14643	457	4								
518	15543	457	<2								
549	16473	383	2								
579	17374	308	2								
610	18304	231	2								
640	19204	157	<2								
671	20134	152	2								
701	21034	152	2								
732	21965	152	12								
762	22865	152	4								
792	23765	250	3								
823	24695	376	<2								
853	25595	457	3								
884	26526	457	<2								
914	27426	457	2								
945	28356	457	<2								
975	29256	457	<2								

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 5
TIME 13:23 EST
START 572300E,4748200N

JUNE 11,1982
BACKGROUND 12 KM DOWNWIND
VARIABLE ALTITUDE
END 524600E,4744600N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
24	730	229	48		
49	1490	229	48		
73	2220	229	48		
98	2980	229	43		
122	3710	229	52		
146	4440	229	28		
171	5200	229	10		
195	5930	229	6		
219	6660	229	12		
244	7420	229	17		
268	8150	229	11		
293	8910	229	7		
317	9640	229	4		
341	10370	315	7		
366	11130	409	4		
390	11860	498	2		
415	12620	592	5		
439	13350	610	5		
463	14080	610	3		
488	14840	610	7		
512	15570	610	2		
536	16300	610	6		
561	17060	610	2		
585	17790	610	5		
610	18550	610	5		
634	19280	595	16		
658	20010	499	7		
683	20770	400	7		
707	21500	305	2		
732	22260	229	6		
756	22990	229	12		
780	23720	229	10		
829	25210	229	3		
853	25940	229	7		
878	26700	229	13		
902	27430	229	14		
939	28555	229	13		
963	29285	241	6		
988	30046	334	9		
1012	30775	424	5		
1036	31505	514	3		
1061	32265	607	7		
1085	32995	611	7		
1109	33725	611	12		
1134	34485	611	13		
1158	35215	611	5		
1183	35976	611	13		
1207	36705	611	9		
1231	37435	611	15		
1256	38196	593	10		
1280	38925	538	10		
1305	39686	481	10		
1329	40416	427	10		
1353	41145	372	5		
1402	42635	261	12		
1426	43365	229	15		
1451	44126	229	6		
1475	44855	229	10		
1500	45616	229	16		
1524	46346	229	17		
1548	47075	229	12		
1573	47836	229	12		

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 6
TIME 13:50 EST
START 524600E,4744600N

JUNE 11,1982
BACKGROUND 12 KM DOWNWIND
VARIABLE ALTITUDE
END 572300E,4748200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
12	420	610	14		
37	1296	610	15		32
61	2136	610	14		35
85	2977	610	15		38
110	3852	610	15		40
134	4693	610	15		37
158	5533	610	15		
182	6408	610	10		38
207	7249	610	20		37
232	8124	544	20		33
256	8965	471	11		33
280	9805	399	15		32
305	10681	333	15		
329	11521	261	15		41
354	12397	229	20		37
378	13237	229	12		34
402	14078	229	15		34
427	14953	229	15		31
451	15793	229	15		
475	16634	229	10		42
500	17509	229	9		38
524	18350	229	13		35
549	19225	229	13		36
585	20486	260	13		
610	21361	343	18		46
634	22202	423	18		42
658	23042	503	20		44
683	23918	587	15		43
707	24758	610	21		42
732	25634	610	7		
756	26474	610	14		40
780	27315	610	19		37
805	28190	610	15		38
829	29031	610	25		38
853	29871	610	13		
878	30746	610	21		
902	31587	610	17		35

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
927	32462	610	12		40
951	33303	607	22		45
975	34143	432	8		40
1000	35019	332	15		
1024	35859	237	11		44
1049	36735	229	13		56
1073	37575	229	20		61
1097	38416	229	16		51
1122	39291	229	11		61
1146	40132	229	11		
1170	40972	229	9		42
1195	41847	229	19		45
1219	42688	229	14		45
1244	43563	229	14		49
1268	44404	229	10		
1292	45244	229	8		
1317	46120	229	12		46
1341	46960	229	7		51
1366	47836	229	10		52

BLANKS ARE MISSING DATA

RUN 6
PASS 7
TIME 15:28 EST
START 571900E,4753100N

JUNE 11,1982
VERTICAL SPIRAL 15 KM DOWNWIND
VARIABLE ALTITUDE
END 571900E,4753100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
12		30	23		
37		94	13		
61		154	10		
85		188	9		
110		223	11		
134		257	11		
158		291	20		
183		343	16		
207		404	21		
232		464	12		
256		508	5		
280		551	13		
305		596	8		
329		638	17		
354		676	9		
378		714	12		
402		752	12		
427		786	23		
451		816	10		
475		847	9		
500		879	12		
524		909	13		
549		955	14		
597		1049	8		
622		1097	7		
646		1134	6		
671		1176	6		
719		1263	4		
744		1312	<2		
768		1359	6		
792		1397	2		
817		1435	5		
841		1470	10		
866		1508	<2		
890		1546	6		
914		1587	6		
939		1629	5		
963		1669	5		
988		1712	15		
1012		1752	2		
1036		1793	2		
1061		1833	5		
1085		1863	<2		
1109		1894	<2		
1134		1926	3		
1170		1971	4		

BLANKS ARE MISSING DATA

RUN 6
PASS 8
TIME 15:48 EST
START 571900E,4753100N

JUNE 11,1982
VERTICAL SPIRAL 15 KM DOWNWIND
VARIABLE ALTITUDE
END 571900E,4753100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
24		2104	3		
61		2057	3		
98		2010	3		
134		1964	3		
171		1917	<2		
207		1871	3		
244		1823	<2		
280		1766	2		
317		1707	2		
354		1638	2		
390		1562	3		
427		1492	2		
463		1431	7		
500		1368	<2		
536		1308	2		

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 9
TIME 16:42 EST
START 578500E,4746600N

JUNE 11,1982
INPLUME 8 KM DOWNWIND
305 m ALTITUDE
END 586400E,4745400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	97		53		
3	292		<36		
5	487		60		
7	682		<36		
9	877		64		
11	1072		<36		
13	1267		40		
15	1462		<36		
17	1657		69		
19	1851		65		
21	2046		69		
23	2241		83		
25	2436		58		52
27	2631		58		51
29	2826		78		51
31	3021		50		51
34	3317		73		52
36	3508		91		50
38	3703		<36		51
40	3898		82		50
42	4093		140		51
44	4288		<36		53
46	4483		<36		52
48	4677		123		52
50	4872		95		52
52	5067		100		
54	5262		<36		52
56	5457		96		52
58	5652		75		50
60	5847		71		52
62	6042		71		52
64	6237		42		52
66	6431		47		52
68	6626		39		51
70	6821		58		50
72	7016		78		50
74	7211		66		49
76	7406		<36		51
78	7601		103		49
80	7796		86		49
82	7991		66		48

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 10
TIME 16:45 EST
START 586400E,4745400N

JUNE 11,1982
INPLUME 8 KM DOWNWIND
458 m ALTITUDE
END 578500E,4746600N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	71		57		
3	212		<36		41
5	354		148		39
7	495		86		35
9	636		47		36
11	778		62		33
13	919		<36		32
15	1061		107		31
17	1202		39		31
19	1344		82		29
21	1485		58		29
23	1626		<36		29
25	1768		83		27
27	1909		<36		24
29	2051		78		27
31	2192		49		26
34	2404		<36		26
36	2546		152		22
38	2687		39		23
40	2829		62		
42	2970		78		23
44	3111		62		24
46	3253		62		20
48	3394		<36		20
50	3536		107		20
52	3677		58		21
54	3819		43		20
56	3960		106		20
58	4101		<36		18
60	4243		98		19
62	4384		<36		18
64	4526		53		16
66	4667				17
68	4809		58		16
70	4950		62		16
72	5091		58		15
74	5233		<36		14
76	5374		98		15
78	5516		<36		14
80	5657		83		13
82	5799		62		13
84	5940		82		10
86	6081		43		8
88	6223		58		8
90	6364		<36		5
92	6506		53		7
94	6647				5
97	6859		123		6
99	7001		<36		<5
101	7142		<36		<5
103	7283		74		
105	7425		49		
107	7566		69		
109	7708		<36		
111	7849		152		
113	7991		49		

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 11
TIME 16:55 EST
START 578500E,4746600N

JUNE 11,1982
INPLUME 8 KM DOWNWIND
610 m ALTITUDE
END 586400E,4745400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	30		827		
3	90		885		
5	151		756		
7	211		606		
9	271		447		
11	332		211		
13	392		311		
15	452		373		
17	513		765		
20	603		1365		
22	663		1479		
24	724		1562	1	
26	784		1539	1	
28	844		1523	1	
30	905		1445	1	
33	995		1309	1	
35	1055		1294	1	
37	1116		1180	1	
39	1176		1123	1	
41	1236		1165	1	
43	1297		1161	1	
45	1357		1161		
47	1417		1143		
49	1478		1060		
51	1538		1018		
53	1598		921		
55	1658		870		
57	1719		840	1	
59	1779		770	1	
61	1839		845	1	
63	1900		691	1	
65	1960		713	1	
67	2020		662	1	
69	2081		561	1	
71	2141		604	1	
73	2201		519	1	
75	2261		443	1	

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
77	2322		365	1	
79	2382		267	1	
81	2442		283		
83	2503			1	34
85	2563		458	1	33
87	2623		398	1	35
89	2684		356	1	36
91	2744		174	1	38
93	2804			1	39
96	2895		179	1	32
98	2955		262	<1	31
100	3015		372	<1	32
102	3076		410	<1	32
104	3136		482		31
106	3196		483		36
108	3257		466		33
110	3317		396		36
112	3377		318		35
114	3437		293		32
116	3498		246	1	32
118	3558		274	<1	32
120	3618		428	1	33
122	3679		440	1	33
124	3739		485	1	
126	3799		485	1	33
128	3860		445	1	35
130	3920		442	1	33
132	3980		365	1	33
134	4041		478	1	33
136	4101		506	1	33
138	4161		440	1	33
140	4221		456	1	34
142	4282		460	1	34
144	4342		593	1	36
146	4402		594	1	35
148	4463		547	1	35
150	4523		523		34

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 11 ...CONTINUED
TIME 16:55 EST
START 578500E,4746600N

JUNE 11,1982
INPLUME 8 KM DOWNWIND
610 m ALTITUDE
END 586400E,4745400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
152	4530		561	1	34
154	4604		589	1	33
156	4704		509	1	33
158	4784		478	1	
161	4855		467	1	33
163	4915		483	1	33
165	4975		395		33
167	5026		457		33
169	5096		398		33
171	5156		423		
173	5217		523		35
175	5277				34
177	5337		557	1	34
179	5397		412	1	34
181	5458		526	1	34
183	5518		534	1	34
185	5578		480	1	34
187	5639		469	1	33
189	5699		396	1	34
191	5759		414	1	33
193	5820		402	<1	33
195	5880		469	1	33
197	5940		453	1	36
199	6001		420	<1	
201	6061		302	<1	
203	6121		152	<1	
205	6181		172	1	
207	6242		88	<1	
209	6302		92	<1	
211	6362		81	<1	
213	6423		75	<1	
215	6483		53	<1	
217	6543		<36	<1	
219	6604		105	<1	
221	6664		121	<1	
224	6754		149	<1	46
226	6815		<36		53

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
228	6875		56		52
230	6935		98		51
232	6996		<36		51
234	7056		61		51
236	7116		47		51
238	7176		<36		50
240	7237		82	1	50
242	7297		43	1	
244	7357		91		51
246	7418		<36	1	50
248	7478		<36	1	51
250	7538		49	1	50
252	7599		<36	1	
254	7659		<36	1	50
256	7719		40	1	49
258	7780		40	1	52
260	7840		40	1	51
262	7900		40	1	49
264	7960		40		50

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 12
TIME 17:01 EST
START 586400E,4745400N

JUNE 11,1982
INPLUME 8 KM DOWNWIND
763 m ALTITUDE
END 578500E,4746600N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	41		115	<1	
3	122		120	<1	29
5	204		91	<1	29
7	285		160	<1	29
9	367		120	<1	29
11	448			<1	27
13	530		185	<1	18
15	612		97	<1	17
17	693		115	<1	27
19	775		96	<1	20
21	856		115	<1	16
23	938		156	<1	14
25	1019		140	<1	17
27	1101		174	<1	14
29	1182		85	<1	14
31	1264		189	<1	13
33	1336		53	<1	11
35	1468		219	<1	11
37	1549		89	<1	11
39	1631		163	<1	9
41	1712		173	<1	7
43	1794		146		8
45	1875		196		7
47	1957		200		9
49	2038		214		6
51	2120		263		6
53	2201		256		7
55	2283		258		5
57	2365		341	<1	7
59	2446		289	<1	5
61	2528		269	<1	5
63	2609		249	<1	<5
65	2691		244	<1	<5
67	2772		249	<1	5
69	2854		258	<1	5
71	2935		307	<1	<5
73	3017		282	<1	<5
75	3098		227	1	5
77	3180		216	<1	15
79	3261		271	1	5
81	3343		271	<1	5
83	3425		172	<1	5
85	3506		115	<1	5
87	3588		124	<1	<5
89	3669		249	<1	10
91	3751		294	1	5
93	3832		211	1	5
95	3955		240	1	5
97	4078		171	1	5
99	4118		158	1	5
101	4199		169		5
103	4281		82		5
105	4362		269		5
107	4444		118		5
109	4525		169		15
111	4607		196		15
113	4688		174		10
115	4770		78	1	10
117	4851		130	1	10
119	4933		40	1	
121	5015			1	
123	5096		112	1	
125	5178		78	1	
127	5259		58	1	
129	5341		91	1	
131	5422		76	1	
133	5504		42	1	
135	5585		58	1	
137	5667		49	1	
139	5748		62	1	
141	5830		136	1	
143	5911		44	1	48
145	5993		49	1	48
147	6075		44	1	47

BLANKS ARE MISSING DATA

RUN 6
PASS 12 ...CONTINUED
TIME 17:01 EST
START 586400E,4745400N

JUNE 11,1982
INPLUME 8 KM DOWNWIND
763 m ALTITUDE
END 578500E,4746600N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb	TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
151	6156		49	<1	49						
153	6238		<36	<1	48						
155	6319		<36	<1	47						
157	6401		<36	<1	47						
159	6523		<36	<1	46						
162	6604		<36	<1	43						
164	6686		<36	<1	48						
166	6768		<36								
168	6849		40		46						
170	6931		<36		46						
172	7012		<36		46						
174	7094		<36		47						
176	7175		<36		47						
178	7257		40	<1	47						
180	7338		<36	<1	46						
182	7420		<36	<1	47						
184	7501		<36	<1	46						
186	7582		<36	<1	46						
188	7664		<36	<1	44						
190	7746		<36	<1	46						
192	7828		60	<1	44						
194	7909		40	<1	45						
196	7991			<1							

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 13
TIME 17:06 EST
START 578500E.4746600N

JUNE 11.1982
INPLUME 8 KM DOWNWIND
610 m ALTITUDE
END 586400E.4745400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	47			<1	5
3	140		674	<1	5
5	234		566	<1	5
7	327		520	<1	5
9	421		538	1	6
11	514		471	1	5
13	607		469	1	5
15	701		496	1	5
17	794		458	<1	5
19	888		505	<1	7
21	981		510	<1	6
23	1075		425	<1	7
25	1168		443	<1	9
27	1262		420	<1	9
29	1355		441	1	11
31	1449		442	<1	10
34	1589		369	<1	15
36	1682		237	<1	19
38	1776		257	<1	
40	1869		165	<1	13
42	1963		101	<1	13
44	2056		200	<1	12
46	2150		295		12
48	2243		482		12
50	2336		459		12
52	2430		392		13
54	2523		347		14
56	2617		328		14
58	2710		351	<1	22
60	2804		298	<1	34
62	2897		240	<1	32
64	2991		152	<1	31
66	3084		43	<1	30
68	3178		77	<1	26
70	3271		46	<1	21
72	3364		134	<1	22
74	3458		178	<1	21
76	3551			<1	20
78	3645		182	<1	23
80	3738		231	<1	33
82	3832		196	<1	37
84	3925		162	1	32
86	4019		84	<1	28
88	4112		71	<1	24
90	4206		103	<1	21
92	4299		128	<1	20
94	4393		138	<1	19
97	4533		160	<1	20
99	4626		333	<1	25
101	4720		344	<1	40
103	4813		296	1	32
105	4907		167		
107	5000		124		
109	5093		77		
111	5187		182		
113	5280		281		
115	5374		224		
117	5467		204		
119	5561		135	1	
121	5654		102	1	
123	5748		154	1	
125	5841		142	1	
127	5935		136	<1	
129	6028		38	1	53
131	6121		49	1	54
133	6215		65	<1	50
135	6308		76	1	52
137	6402		73	1	50
139	6495		56	1	50
141	6589		58	<1	52
143	6682			<1	52
145	6776		136	<1	52
147	6869		44	<1	51
149	6963		126	<1	50

BLANKS ARE MISSING DATA

RUN 6
PASS 13 ...CONTINUED
TIME 17:06 EST
START 578500E,4746600N

JUNE 11,1982
INPLUME 8 KM DOWNWIND
610 m ALTITUDE
END 586400E,4745400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
151	7056		64	<1	43
153	7150			<1	48
155	7243		49	<1	46
157	7336		73	<1	48
160	7477		83	<1	49
162	7570		47	<1	48
164	7664		62		51
166	7757		53		51
168	7850		125		50
170	7944		47		52

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 14
TIME 17:10 EST
START 586400E,4745400N

JUNE 11,1982
INPLUME 9 KM DOWNWIND
610 m ALTITUDE
END 572400E,4748200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	36		44		51
3	107		69		51
5	178		53		50
7	249		<36	<1	50
9	320		<36	<1	49
11	391		<36	<1	51
13	462		36	<1	
15	533		40	<1	
17	604		60	<1	
19	675			<1	
21	746		40	<1	
23	817		<36	<1	
25	888		60	<1	
27	959		44	<1	
29	1030		44	<1	
31	1101		44	<1	
34	1208		36	<1	
36	1279		40	1	
38	1350		<36	1	42
40	1421		<36	<1	42
42	1492		<36	<1	45
44	1563		94	<1	47
46	1634		<36	1	44
48	1705		69	<1	44
50	1776		49	<1	43
52	1847		<36	<1	42
54	1918		<36	<1	43
56	1989		89		44
58	2060		78		47
60	2131		<36		48
62	2202		49		
64	2273		<36		46
66	2344		<36		45
68	2415		60	<1	46
70	2486		<36	<1	46
72	2557		93	<1	43
74	2628		<36	<1	42

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
76	2699			1	42
78	2770		44	1	42
80	2841		<36	<1	41
82	2912		<36	<1	39
84	2983		<36	1	29
86	3054		<36	1	29
88	3125		105	<1	31
90	3196		53	<1	36
92	3267		73	1	34
94	3338		93	<1	35
97	3445		<36	<1	35
99	3516		78	<1	34
101	3587		<36	1	34
103	3658		36	1	34
105	3729		44	<1	32
107	3800		<36	1	29
109	3871		139	1	22
111	3942		36	1	21
113	4013		69	<1	22
115	4084		168	1	22
117	4155		140		29
119	4226		114		31
121	4297		60		22
123	4368		65		15
125	4439		104		13
127	4510		163		14
129	4582		335	1	14
131	4653		463	1	18
133	4724		442	<1	19
135	4795		382	<1	17
137	4866			<1	13
139	4937			<1	14
141	5008		196	1	13
143	5079		309	<1	15
145	5150		377	<1	14
147	5221		449	<1	12
149	5292		470		13

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 14 ...CONTINUED
TIME 17:10 EST
START 586400E.4745400N

JUNE 11,1982
INPLUME 9 KM DOWNWIND
610 m ALTITUDE
END 572400E.4748200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
151	5767		436	<1	13
153	5824		351	1	
155	5905			1	
157	5976		373	<1	
159	6082		362	<1	
161	6154		350	<1	
163	6225		340	<1	
165	6296		389	<1	
167	6367		468	<1	
169	6438		510	<1	
171	6509		602	1	
173	6580		573		
175	6651		614		
177	6722		547		30
179	6793		523		30
181	6864		501		28
183	6935		599		25
185	7006		567	<1	30
187	7077		542	1	28
189	7148		596	1	31
191	7219		559	1	30
193	7290		534	1	29
195	7361		578	1	
197	7432		550	1	29
199	7503		564	1	31
201	7574		722	1	29
203	7645		739	1	29
205	7716		706	1	29
207	7787		690	1	29
209	7858		645	1	31
211	7929		631	1	29
213	7600		622	1	32
215	7671		631	1	31
217	7742		585	1	30
219	7813		640	1	31
221	7920		692	1	32
223	7991		536	1	31

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
227	8062		567	1	34
229	8133		569	1	34
231	8204		658	1	39
233	8275		705	1	40
235	8346		1008		41
237	8417		1026		41
239	8488		1539		43
241	8559		1607		43
243	8630		1657		42
245	8701		1599		37
247	8772		1485	1	40
249	8843		1497		41
251	8914		1446	1	41
253	8985		1408	1	43
255	9056		1484	1	44
257	9127		1396	1	42
259	9198		1404	1	45
261	9269		1519	1	48
263	9341		1402	1	47
265	9412		1347	1	44
267	9483		1394	1	46
269	9554		1497	1	45
271	9625		1521	1	44
273	9696		1503	1	
275	9767		1410	1	43
277	9838		1331		41
279	9909		1063	1	41
281	9980		918	1	41
283	10051		649	1	41
285	10122		778	1	43
288	10228		730	1	47
290	10300		638	1	52
292	10371		501	1	54
294	10442		182		
296	10513		67		
298	10584		32		
300	10655		157		

BLANKS ARE MISSING DATA

RUN 6
PASS 14 ...CONTINUED
TIME 17:10 EST
START 586400E,4745400N

JUNE 11,1982
INPLUME 9 KM DOWNWIND
610 m ALTITUDE
END 572400E,4748200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
302	10726		387		
304	10797		376		
307	10903		360	<1	
309	10974		312	<1	
311	11045		293	<1	
313	11116		221	1	
315	11187		240	<1	
317	11258		103	<1	
319	11329		142	<1	45
321	11400		86	<1	43
323	11472		79	<1	42
325	11543		82	<1	47
327	11614		36	<1	49
329	11685		50	<1	48
331	11756		65	<1	47
333	11827		96	<1	44
335	11899		42	<1	39
337	11969		79	<1	42
339	12040		69	<1	42
341	12111		45	1	39
343	12182		108	<1	40
345	12253		70	<1	48
347	12324		65	<1	47
350	12430		84	1	46
352	12501		65	1	47
354	12573		<36		47
356	12644		71		48
358	12715		85		48
360	12786		126		50
362	12857		62		49
364	12928		43		47
366	12999		78		41
368	13070		107	<1	41
370	13141			<1	42
372	13212		53	<1	
374	13283		78	<1	44
376	13354		62	<1	46

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
378	13425		58	<1	45
380	13496		58		44
382	13567		126	1	45
384	13638		80	<1	43
386	13709		58	<1	43
388	13780		106	<1	43
390	13851		111		43
392	13922		36		42
394	13993		79	1	44
396	14064		78	1	37
398	14135		47	<1	37
400	14206		126	<1	32
402	14277		71		

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 15
TIME 17:21 EST
START 593200E,4749400N

JUNE 11,1982
INPLUME 16 KM DOWNWIND
153 m ALTITUDE
END 578300E,4756400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	370		182	<1	37
3	810		84	<1	37
5	1249		96	<1	37
7	1889		151	<1	37
9	2429		151	<1	40
11	2969		124	<1	41
13	3509		71	<1	39
15	4048		97	<1	39
17	4588		102	<1	36
19	5128		82		36
21	5667		98	<1	40
23	6207		102	<1	39
25	6747		83	<1	35
27	7287		142	<1	37
29	7826		36	1	37
31	8366		80	1	36
34	9176		154	<1	35
36	9716		79	<1	35
38	10255		113	<1	37
40	10795		118	<1	44
42	11335		142	1	41
44	11875		111	<1	39
46	12414		63	1	42
48	12954		54	<1	44
50	13494		36		43
52	14034		56		
54	14573		47		
56	15113		59		
58	15653		82		
61	16462		66		

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 16
TIME 17:31 EST
START 578600E,4758500N

JUNE 11,1982
INPLUME 18 KM DOWNWIND
458 m ALTITUDE
END 592500E,4751200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	18		275	<1	15
4	272		194	<1	21
6	436		198	<1	21
9	612		110	1	18
11	748		171	<1	
14	952		294	<1	
17	1165		235	<1	
19	1291		243	<1	
22	1495		258	<1	
24	1631		216	<1	
27	1835		150	1	
29	1971		57	<1	
32	2175		170	1	
34	2311		182	1	27
37	2515			<1	28
39	2651		340	<1	29
42	2855		271	1	29
44	2991		314	1	30
47	3194		284		30
50	3398		165		30
52	3534		151		30
55	3738		185		30
57	3874		140		31
60	4078		192	<1	30
62	4214		145	<1	30
65	4418		186	<1	33
67	4554		160	<1	31
70	4758		129	<1	30
72	4894			<1	35
75	5098		160	<1	37
77	5237		88	<1	37
80	5437		64	<1	34
82	5641		78		36
85	5777		106	<1	36
88	5981		95	<1	38
90	6117		106	<1	35
93	6321		76	<1	34

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
95	6457		93	1	39
98	6661		122	<1	38
100	6797		86	<1	41
103	7001		69	1	40
105	7137		130		
108	7340		71		43
110	7476		50		41
113	7680		43		38
115	7884		46	1	33
118	8020		82	1	32
121	8224		109	1	35
123	8360		174	1	39
126	8564		145	1	34
128	8700		141	1	33
131	8904		115	1	30
133	9040		145	1	30
136	9247		222	<1	31
139	9379		134	1	29
141	9583		224	1	28
144	9787		302		28
146	9923		302	1	31
149	10127		274	1	28
151	10263		240	1	
154	10467		188	1	
156	10603		81	1	
159	10807		122	1	
161	10943		118	1	
164	11147		106		
166	11282		79		
169	11486		59		
171	11622		42		
174	11826		219		
177	12030				33
179	12166		304	1	37
182	12370		259	<1	45
184	12506		200	<1	52
187	12710		67	1	49

BLANKS ARE MISSING DATA

RUN 6
PASS 16 ...CONTINUED
TIME 17:31 EST
START 578600E,4758500N

JUNE 11,1982
INPLUME 18 KM DOWNWIND
458 m ALTITUDE
END 592500E,4751200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
189	12946		<36	<1	
192	13050		<36	<1	48
194	13186		43		47
197	13289		93	<1	44
199	13525		93	<1	40
202	13729		49	<1	34
204	13865		136	<1	39
207	14069		122	<1	45
210	14273		90	<1	39
212	14409		171	<1	33
215	14613		104	<1	36
217	14749		250	<1	38
220	14953		181	<1	40
222	15089		142	<1	50
225	15293		107	<1	51
227	15429		122		46
230	15632		<36		46

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 17
TIME 17:36 EST
START 593200E,4749400N

JUNE 11,1982
INPLUME 17 KM DOWNWIND
610 m ALTITUDE
END 570800E,4760000N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	82			<1	34
4	328			<1	31
6	492		62	<1	26
9	739		78	<1	24
11	903		88	<1	24
14	1149		86	<1	29
17	1395		110	<1	27
19	1559		84	<1	19
22	1805		101	<1	19
24	1969		118		19
27	2216		128		19
29	2380		147		14
32	2626		133		20
34	2790		103		19
37	3036		111		15
39	3200		115	<1	14
42	3446		120	<1	9
44	3611		133	<1	8
47	3857		183	<1	8
50	4103		185	<1	6
52	4267		250	<1	<5
55	4513		126	<1	<5
57	4677		131	<1	20
60	4923		131	<1	16
62	5088		125	<1	16
65	5334		85	<1	14
67	5498		<36	<1	7
70	5744		79	<1	<5
72	5908		120	<1	<5
75	6154		176	<1	<5
77	6318		180	<1	<5
80	6565		265	<1	<5
83	6811		281	<1	
85	6975		191		<5
88	7221		252		<5
90	7385		283		<5
93	7631		257		<5

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
95	7795		206		<5
98	8042		124		<5
100	8206		158	1	5
103	8452		186	1	<5
105	8616		221	1	5
108	8862		191	<1	
110	9026		213	1	
113	9273		204	1	
116	9519		209	1	
118	9683		136	1	
121	9929		221	<1	
123	10093		176	<1	
126	10339		170	1	
128	10503		303	1	
131	10750		267	<1	
133	10914		317	1	
136	11160		372	1	30
138	11324		331	1	29
141	11570		289	1	28
144	11816		345	1	27
146	11980		376		26
149	12227		332		27
151	12391		344		24
154	12637		341		25
156	12801		309		25
159	13047		362	1	24
161	13211		342	1	25
164	13457		362	1	25
166	13622		342	1	29
169	13868		347	1	28
171	14032		399	1	30
174	14278		295	1	30
177	14524		450	1	29
179	14688		432	1	32
182	14935		453	1	34
184	15099		409	1	33
187	15345		275	1	33

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 17 ...CONTINUED
TIME 17:36 EST
START 593200E,4749400N

JUNE 11,1982
INPLUME 17 KM DOWNWIND
610 m ALTITUDE
END 570800E,4760000N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
189	15509		266	1	31
192	15755		274	1	47
194	15919		261	1	39
197	16165		136	1	37
199	16329		129	1	36
202	16576		133		35
204	16740		154		33
207	16986		373		32
210	17232		335		33
212	17396		345		33
215	17642		309		48
217	17807		275	1	55
220	18053		139	1	54
222	18217		77	1	55
225	18463		178	1	
227	18627		151	<1	57
230	18873		56	<1	59
232	19037		65	<1	59
235	19284		87	<1	60
237	19448		98	<1	59
240	19694		89	<1	62
242	19940		38	<1	61
245	20104		91	<1	61
248	20350		63	<1	61
250	20514		42	<1	61
253	20761		50	<1	
255	20925		50	<1	
258	21171		58	<1	
260	21335		37	<1	
263	21581		74		
265	21745		71		
268	21991		62		
271	22236		54		
273	22402		<36		
276	22648		<36		49
278	22812		114	<1	49
281	23058		79	<1	49

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
283	23222		39	1	49
286	23469		<36	<1	49
288	23633		70	<1	49
291	23879		69	1	53
293	24043		<36	<1	50
296	24289		49	1	53
298	24453		49	1	51
301	24699		44	<1	52

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 18
TIME 17:43 EST
START 570800E,4760000N

JUNE 11,1982
INPLUME 17 KM DOWNWIND
763 m ALTITUDE
END 593200E,4749400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
2	222		40	<1	
5	667		54	<1	
10	1111		40	<1	
12	1445		49	<1	
17	1889			<1	
21	2334		44	<1	49
25	2778		82	<1	49
29	3223		37	<1	48
32	3556		49	<1	49
36	4001		40	<1	48
40	4445		54	<1	48
44	4890		<36	<1	47
48	5334		57		49
51	5668		52		48
55	6112		<36		47
59	6557		57	<1	48
63	7001		44	<1	47
67	7446		<36	<1	47
70	7779		87	<1	47
74	8223		<36	<1	46
78	8668		44	<1	48
82	9112		57	<1	47
86	9557		<36	<1	46
90	10001		49	<1	45
93	10335		<36	<1	46
97	10779		54	<1	46
101	11224		40	<1	46
105	11668		57	<1	46
109	12113		<36		46
112	12446		44		46
116	12891				47
120	13335				47
124	13780			<1	48
128	14224			<1	46
131	14558			<1	47
135	15002			<1	
139	15447			<1	

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
143	15891			<1	
147	16336		36	1	
150	16669		37	<1	
154	17114		44	<1	
158	17558		<36	1	
162	18003		54	1	48
166	18447		57		50
170	18892		49		52
173	19225		37		51
177	19670		<36		51
181	20114		<36	1	50
185	20559		<36	1	50
189	21003			1	50
192	21336			1	48
196	21781			1	49
200	22226			1	49
204	22670			1	49
208	23115		54	<1	49
211	23448		36	<1	52
215	23892		40	1	52
219	24337		62	1	49
223	24781		49	1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 19
TIME 17:49 EST
START 593200E,4749400N

JUNE 11,1982
INPLUME 17 KM DOWNWIND
458 m ALTITUDE
END 570800E,4760000N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
2	108		36	<1	42
6	324		<36	<1	43
10	540		36	<1	39
14	702		50	<1	38
17	918		36		37
21	1134		<36		35
25	1350		50		35
29	1566		<36		
32	1728		40	<1	
36	1944		<36	<1	
40	2160		50	<1	
44	2376		50	<1	
48	2592		<36	<1	
51	2753		53	<1	
55	2969		40	<1	42
59	3185		<36	<1	42
63	3401		66	<1	33
67	3617		109	<1	35
70	3779			<1	36
74	3995		84	<1	36
78	4211		98		42
82	4427		58		39
86	4643		58		37
90	4859		71	<1	40
93	5021			<1	43
97	5237		<36	<1	42
101	5453		40	<1	37
105	5669		57	<1	36
109	5885		106	<1	36
113	6047		57	<1	41
116	6263		76	<1	34
120	6479		107	<1	30
124	6695		113	<1	27
128	6911		80	<1	27
131	7073		188	<1	30
135	7289		125	<1	33
139	7505		69		31
143	7721		81		33
147	7937		90		31
150	8099		77	<1	32
154	8314		62	<1	33
158	8530		50	<1	29
162	8746		122	<1	29
166	8962		93	<1	29
170	9178		128	<1	
173	9340		144	<1	
177	9556		120	<1	
181	9772		97	1	
185	9989		148	<1	
189	10204		111	<1	
192	10366		167	<1	
196	10582		142		34
200	10798		138		31
204	11014		97		36
208	11230		160		33
211	11392		115	<1	28
215	11608		128	<1	31
219	11824		115	<1	28
223	12040		156	<1	28
227	12256		124	<1	26
231	12472		166	<1	26
234	12634		158	1	25
238	12850		127	<1	27
242	13066		177	1	25
246	13282		152	<1	27
250	13498		125	<1	24
253	13659		206		24
257	13875		138		22
261	14091		174		24
265	14307		161		22
269	14523		177		25
272	14685		170		24
276	14901		121	<1	27
280	15117		89	1	22

BLANKS ARE MISSING DATA

RUN 6
PASS 19 ...CONTINUED
TIME 17:49 EST
START 593200E,4749400N

JUNE 11,1982
INPLUME 17 KM DOWNWIND
458 m ALTITUDE
END 570800E,4760000N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
284	15332		99	<1	18
288	15549		156	<1	21
291	15711		176	<1	21
295	15927		146	<1	23
299	16143		171	<1	20
303	16359		219	<1	17
307	16575		260	<1	19
311	16791		260	<1	
314	16953		353		
318	17169		399		
322	17385		506		
326	17601		460		
330	17817		293		
333	17979		382	<1	25
337	18195		391	<1	30
341	18411		332	<1	27
345	18627		401	<1	29
349	18843		297	<1	29
352	19005		223	<1	31
356	19220		170	<1	29
360	19436		227	<1	27
364	19652		290	<1	33
368	19868		179	<1	33
371	20030		97	<1	33
375	20246		128		33
379	20462		93		40
383	20678		91		48
387	20894		38		47
391	21110		<36		42
394	21272		<36		43
398	21488		98	<1	45
402	21704		<36	<1	
406	21920		<36	<1	47
410	22136		<36	<1	47
413	22298		<36	<1	47
417	22514		<36	<1	47
421	22730		40	<1	46
425	22946		50	<1	46
429	23162		44		46
432	23324		110	1	47
436	23540		55		47
440	23756		36		44
444	23972		60		46
448	24188		57		44
451	24350		53		
455	24566		44	<1	
459	24781		49	1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 6
PASS 20
TIME 17:58 EST
START 570800E,4760000N

JUNE 11,1982
INPLUME 17 KM DOWNWIND
305 m ALTITUDE
END 593200E,4749400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	125			<1	9
11	688			<1	10
21	1714			<1	10
30	1877			<1	15
40	2502				21
50	3129				19
59	3692			<1	19
69	4218			<1	24
78	4881			<1	
88	5507			<1	
99	6195				40
109	6821				32
118	7384			<1	35
128	8010			<1	42
137	8577			<1	44
147	9199			<1	48
156	9762				47
166	10388				54
176	10951			<1	53
186	11577			<1	57
194	12140			<1	59
204	12766			<1	57
213	13329			<1	58
223	14769			<1	
246	15395			<1	48
255	15958			<1	48
263	16584			<1	48
274	17147				52
284	17773				52
293	18336			1	53
302	18962			<1	57
312	19525			<1	54
322	20151			<1	
331	20714			<1	54
341	21340				52
351	21965			<1	52
360	22529			<1	

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
370	23154			1	
379	23718			<1	54
389	24343			<1	56

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 1
TIME 5:44 EST
START 571900E.4753100N

JUNE 12,1982
VERTICAL SPIRAL 15 KM DOWNWIND
VARIABLE ALTITUDE
END 571900E.4753100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
17		29	5		
34		57	5		
50		84	5		
69		117	8		
85		144	10		
102		180	17		
120		208	16		
137		271	6		
209		580	1		
261		672	<2		
278		700	<2		
295		729	<2		
312		760	<2		
470		802	2		
447		845	<2		
465		891	<2		
482		924	<2		
498		944	<2		
517		968	<2		
533		989	<2		
550		1010	<2		
567		1032	<2		
585		1055	<2		
602		1080	<2		
619		1108	<2		
637		1139	<2		
654		1168	<2		

Hydrocarbon sample (#246) collected at 610 m.
Hydrocarbon sample (#256) collected at 1219 m.

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 2
TIME 5:55 EST
START 571900E,4753100N

JUNE 12,1982
VERTICAL SPIRAL 15 KM DOWNWIND
VARIABLE ALTITUDE
END 571900E,4753100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
17	1190	<2	3	70
34	1162	<2	3	77
50	1135	<2	3	82
69	1102	<2	3	85
85	1075	<2	3	88
102	1056	<2	3	88
120	1040	<2	3	84
137	1024	<2	3	78
154	1009	<2	3	78
172	992	<2	3	8[illegible]
189	977	<2	3	89
206	961	<2	3	91
223	946	<2	3	93
241	929	<2	3	94
258	914	2	3	94
274	987	<2	3	91
292	955	<2	3	91
309	828	<2	3	91
326	799	<2	3	
344	769	<2	3	
361	745	<2	3	87
378	724	<2	4	87
395	702	<2	4	87
413	679	<2	3	88
430	658	<2	3	91
447	636	<2	3	92
465	617	<2	3	89
482	595		3	90
498	579		3	91
517	560	<2	3	92
533	543	<2	3	92
550	526	<2	3	89
567	509	<2	3	89
585	490	<2	3	89
602	473	<2	3	90
619	455	<2	3	91
637	428	<2	3	92

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
654	402	2	3	92
671	378	2	3	
689	351	2	3	
706	325	<2	4	
722	302	2	5	
739	276	2	4	
757	249	2	3	
774	224	2	3	
791	199	2	3	
809	172	<2	3	
826	147	2	3	
843	126	<2	3	
861	102	19	3	
878	81	30	3	
895	60	31	3	
911	40	26	3	
930	15	14	3	

PAN sample collected during descent.

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 3
TIME 8:04 EST
START 571900E,4753100N

JUNE 12,1982
VERTICAL SPIRAL 15 KM DOWNWIND
VARIABLE ALTITUDE
END 571900E,4753100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
2	61				72
17	61		9		68
34	61		12		68
50	61		13		69
69	61		10		69
85	61		8		68
102	61		7		68
120	61		9		68
137	61		9		68
154	61		9		68
172	61		12		68
189	61		13		68
206	61		10		68
223	61		10		69
241	61		10		68
258	61		10		68
274	61		10		69
291	61		10		67
308	61		10		68
325	61		10		69
344	61		10		69
361	61		10		70
378	61		10		71
395	61		10		71
413	61		17		71
430	82		21		69
447	120		20		66
465	161		13		78
482	209		16		78
499	254		12		79
517	307		6		84
533	341		0		86
550	377		12		83
567	413		3		85
585	451		2		95
602	480		12		95
619	507		12		94
637	535		3		93
654	562		2		98
671	589		3		97
689	622		7		94
706	666		4		92
722	707		4		101
739	750		4		94
757	793		4		95
774	832		2		95
791	871		2		94
809	913		2		91
826	949		2		91
843	985		2		90
861	1023		2		91
878	1059		2		91
895	1095		2		88
911	1129		2		91
930	1169		2		90
946	1203		2		90
963	1239		2		90
981	1277		2		89
998	1314		5		87
1015	1350		6		87
1033	1386		2		91
1050	1416		2		90
1067	1447		2		94
1084	1478		5		89
1102	1510		3		

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 4
TIME 9:58 EST
START 576600E.4740200N

JUNE 12,1982
BACKGROUND 3 KM DOWNWIND
VARIABLE ALTITUDE
END 483900E,4745800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
17	547	229	5		87
5[illegible]	1596	229	5		89
85	2714	229	3		86
120	3831	229	7		86
154	4916	229	27		75
189	6034	229	20		80
222	7119	229	3		82
258	8237	229	3		82
293	9354	229	8		83
326	10407	229	12		80
361	11525	229	4		87
395	12610	287	5		85
430	13723	376	2		85
465	14845	458	12		91
498	15899	458	7		95
533	17016	458	3		94
567	18101	458	2		88
602	19219	458	2		96
637	20336	458	15		88
671	21421	458	22		95
706	22539	416	31		89
739	23592	368	28		84
774	24710	316	27		90
809	25827	265	21		86
843	26913	229	18		80
878	28030	229	6		
911	29083	229	9		82
946	30201	229	12		80
981	31318	229	10		
1015	32404	229	12		
1067	34064	292			78
1102	35181	340			82
1135	36235	385			89
1205	38469	457			108
1274	40672	457			137
1343	42875	457			92
1378	43992	434			93

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1411	45046	360	25		91
1446	46163	281	12		
1480	47249	229	9		81
1515	48366	229	13		80
1550	49483	229	7		77
1583	50537	229	12		
1618	51654	229	10		80
1652	52740	253	9		78
1687	53857	364	9		72
1722	54974	457	6		
1756	56060	457	20		95
1791	57177	457	19		97
1824	58231	457	16		112
1859	59348	457	18		
1894	60465	457	12		93
1928	61551	457	6		93
1963	62668	457	2		91
1996	63722	457	2		
2031	64839	457	5		83
2067	65988	399	5		86
2100	67042	273			77
2135	68159	229	4		
2169	69245	229	5		81
2204	70362	229	5		82
2239	71479	229	2		72
2272	72533	229	3		
2307	73650	229			80
2341	74736	229			91
2376	75853	229			84
2428	77513	229			80
2461	78567	248			87
2496	79684	351			99
2531	80801	453			107
2583	82462	457			100
2617	83547	457			110
2652	84664	457			108
2704	86324	457			96

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

JUNE 12,1982
BACKGROUND 3 KM DOWNWIND
VARIABLE ALTITUDE
END 483900E,4745800N

RUN 7
PASS 4 ...CONTINUED
TIME 9:58 EST
START 576600E,4740200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
2737	97378	457			98
2772	88495	457			97
2806	99581	457			104
2858	91241	457			102
2893	92358	457			103

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 5
TIME 12:00 EST
START 483900E,4745800N

JUNE 12,1982
BACKGROUND 3 KM DOWNWIND
VARIABLE ALTITUDE
END 572300E,4748200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
17	309	229			82
50	2078	229			82
85	4043	229			83
120	5708	226			93
154	7326	229			93
189	8991	229			93
227	10808	226			80
258	12277	229			83
293	13938	229			79
361	17173	229			90
395	18790	229			90
430	20455	288	10		92
465	22133	345	6		82
498	23690	405	7		84
533	25355	457	7		99
567	26972	457			95
602	28637	457	7		100
637	30302	457	9		112
671	31919	457	9		97
706	33584	457	11		102
739	35154	398	8		111
774	36819	314	7		91
809	38484	229	11		94
843	40100	229	9		112
878	41766	226	9		112
911	43330	229			107
946	45001	229	11		85
981	46666	229	15		89
1015	48284	229	21		90
1050	49948	229	23		90
1084	51566	227	16		89
1119	53231	216	17		90
1154	54896	294	24		95
1187	56466	457	17		95
1222	58131	457	26		84
1256	59748	457	20		93
1291	61413	457	20		

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1743	63866	457			96
1778	65531	457			79
1411	67121	454			72
1446	68786	352			71
1480	70404	262			98
1515	72069	229	17		111
1550	73733	229	22		98
1583	75303	269	14		106
1618	76968	352	15		95
1652	78586	404	8		98
1687	80251	457	17		90
1722	81915	457	10		96
1756	83533	457	12		97
1791	85198	457	12		
1824	86768	457	12		97
1859	88433	457	12		98

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 6
TIME 13:18 EST
START 586400E,4745300N

JUNE 12,1982
INPLUME 8 KM DOWNWIND
153 m ALTITUDE
END 578500E,4746600N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
			136		
5	246		136	1	84
11	492		136	1	75
17	698		142	1	84
23	944		52		91
31	1277		136		97
37	1519		37		76
43	1765		92	1	94
49	2012		77	1	77
54	2217		57	1	
60	2467		123	1	
66	2719		182	1	
72	2956		102	1	
77	3161		75	1	83
83	3408		86	1	92
89	3654		83		97
94	3859		76		91
100	4106		53		95
106	4352		39	1	
112	4598		44	1	104
118	4845		40	1	101
123	5050		44	1	100
129	5296		44	1	105
135	5542		44	1	116
140	5748		49	1	99
146	5994		37		119
152	6241		36		103
158	6487		53		109
164	6733		44	1	105
169	6939		44	1	109
175	7185		57	1	111
181	7431		42	1	108
186	7637		44	1	109
192	7883		44	1	119

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 8
TIME 13:23 EST
START 578500E,4746600N

JUNE 12,1982
INPLUME 8 KM DOWNWIND
229 m ALTITUDE
END 588900E,4745100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
7	147		40	1	
8	280		40	<1	110
14	666		47	<1	113
20	951		<36	1	115
26	1236		40	1	110
31	1474		48		122
37	1759		51		108
43	2044		<36		112
49	2330		62		
54	2567		<36	<1	
60	2853		38	<1	
66	3138		59	1	
72	3423		76	1	
77	3661		39	1	95
82	3946		44	1	
89	4232		42	1	
94	4469		40		95
100	4755		59		100
106	5040		42		100
112	5325		44	<1	102
118	5610		37	<1	119
123	5848		<36	<1	101
129	6133		47	<1	100
135	6419		79	<1	92
140	6656		147	<1	77
146	6942		222	<1	78
152	7227		419		58
158	7512		167		89
164	7798		<36		113
169	8035		76		107
175	8321		45	1	112
181	8606		45	1	108
186	8844		143	1	89
192	9129		46	1	
198	9414		64	1	
204	9699		<36	1	
209	9937		<36	1	

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
215	10222		<36	<1	97
221	10508		<36		

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 9
TIME 13:27 EST
START 588900E,4745100N

JUNE 12,1982
INPLUME 8 KM DOWNWIND
305 m ALTITUDE
END 578500E,4746600N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
3	192		44	<1	100
8	517		62	<1	97
14	897		37		93
20	1281		<36	<1	88
26	1666		<36	<1	91
31	1986		232	<1	71
37	2371		201	<1	57
43	2755		127	<1	60
49	3139		115	<1	62
54	3460		338		
60	3844		733		
66	4229		361		
72	4613		134		
77	4933		118	<1	87
83	5318		135	<1	80
89	5702		40	<1	100
94	6022		51	<1	105
100	6407		49	<1	113
106	6792		<36	<1	122
112	7176		61	<1	122
118	7560		<36		122
123	7881		57		124
129	8265		<36		127
135	8650		<36		129
140	8970		<36	<1	121
146	9354		<36	<1	124
152	9739		<36	<1	121
158	10123		64	<1	141
164	10508		44	<1	140

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 10
TIME 13:32 EST
START 578500E,4746600N

JUNE 12,1982
INPLUME 8 KM DOWNWIND
458 m ALTITUDE
END 594500E,4744200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb	TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
				<1							
6	469		<36	<1							
11	860		<36	<1							
17	1329		<36	<1							
22	1798		47								
29	2267		<36								
34	2657		<36								
40	3126		56	<1							
46	3595		44	<1							
52	4064		40	<1							
57	4455		40	<1							
63	4924		62	<1							
69	5393		<36	<1							
74	5784		<36	<1							
80	6253		83		69						
86	6722		307		63						
92	7191		528		77						
98	7660		560		51						
103	8050		501	1	48						
109	8519		408	1	44						
115	8988		462	1	43						
120	9379		449	1	42						
126	9848		394	1	56						
132	10317		155	1	108						
138	10786		40	<1	104						
144	11255		38		116						
149	11646		47		109						
155	12115		50								
161	12584		48	<1	107						
166	12974		55	<1	114						
172	13447		39	<1	115						
178	13912		<36	<1	117						
184	14381		40	<1	116						
189	14772		40	<1	118						
195	15241		<36	<1							
201	15710		47	<1							
207	16179		40	<1							

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 11
TIME 13:37 EST
START 595000E,4742400N

JUNE 12,1982
INPLUME 8 KM DOWNWIND
610 m ALTITUDE
END 578500E,4746600N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
3	282		49		
9	753		61		131
14	1217		<36		131
20	1881		<36		
26	2446		62	<1	
31	2916		<36	<1	
37	3480		<36	<1	
43	4045		62	<1	83
49	4609		<36	<1	104
54	5080		<36	<1	104
60	5644		42		106
66	6209		<36		99
72	6773		<36		110
77	7243		71		108
83	7809		57	1	109
89	8372		67	<1	109
94	8842		<36	<1	109
100	9407		48	<1	107
106	9971		49	<1	99
112	10536		52	<1	102
118	11100		49	<1	115
123	11570		36		118
129	12135		44		117
135	12699		<36		108
140	13169		51		106
146	13734		77	<1	102
152	14298		<36	<1	103
158	14863		49	<1	
164	15427		54	<1	
169	15897		42	<1	
175	16462		40	<1	
181	17026				112

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 12
TIME 13:41 EST
START 578500E,4746600N

JUNE 12,1982
INPLUME 8 KM DOWNWIND
534 m ALTITUDE
END 590300E,4744700N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
			53		
6	772		44		124
11	1342		49	<1	127
17	2077		49	<1	126
23	2905		60	<1	124
29	3537		49	<1	126
34	4147		<36	<1	125
40	4879		59	<1	124
46	5610		<36	<1	129
52	6342		44	<1	
57	6952		53		
63	7683		58		
69	8415		57		
74	9025		<36		108
80	9757		<36	<1	113
86	10488		<36	<1	111
92	11220		90	<1	105
98	11952		49	1	

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 13
TIME 13:44 EST
START 590300E,4744700N

JUNE 12,1982
INPLUME 8 KM DOWNWIND
381 m ALTITUDE
END 578500E,4746600N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb	TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
3	169		49	<1	82						
8	451		<36	<1	91						
14	789		44	<1	81						
20	1128		49	<1	86						
26	1466		<36		93						
31	1748		85		85						
37	2086		42								
43	2424		38	<1							
49	2762		49	<1							
54	3044		57	<1							
60	3383		70	<1							
66	3721		81	<1	92						
72	4059		504	<1	88						
77	4341		363	1	81						
83	4679		151	1	126						
89	5018		<36		128						
94	5299		64		112						
100	5638		93		77						
106	5976		150	1	89						
112	6314		196	<1	89						
118	6653		108	1	108						
123	6934		67	<1	81						
129	7272		117	<1	78						
135	7611		124	<1	106						
140	7893		<36	<1	98						
146	8231		37		94						
152	8569		52		109						
158	8908				127						
164	9246		36		129						
169	9528		49	<1	130						
175	9866		60	<1	133						
181	10204		49	<1							
186	10486		42	<1							
192	10824		49	<1							
198	11163		49	<1							
204	11501		58	<1	97						
209	11783		53		98						

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 14
TIME 13:51 EST
START 588100E,4756100N

JUNE 12,1982
INPLUME 23 KM DOWNWIND
381 m ALTITUDE
END 605500E,4751200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	35			<1	
6	332			1	120
11	619			<1	110
17	940			1	105
22	1271			<1	104
29	1543				119
34	1980				109
40	2543			<1	
51	2919			<1	
57	3151			<1	
62	3483			1	86
69	3814			<1	102
74	4081			<1	103
80	4422			<1	82
86	4754				82
91	5031				87
98	5418			<	84
103	5694			<1	106
109	6026			1	84
115	6357			1	81
120	6634			<1	81
126	6965			<1	74
132	7297			<1	71
138	7629			1	76
147	7905				78
149	8237				72
155	8569				65
161	8900				66
166	9177			<1	80
172	9508			<1	60
178	9840			<1	
183	10116			<1	
189	10448			<1	
195	10780			<1	
201	11111			<1	71
206	11388				90
212	11720				95

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
218	12051				83
224	12383				80
230	12715			<1	98
235	12991			1	104
241	13322			1	95
246	13599			1	95
252	13931			1	97
258	14262			<1	99
264	14594			<1	97
270	14926				91
275	15202				98
281	15534				89
287	15866			1	93
293	16197			1	93
299	16474			1	94
304	16805			1	92
310	17137			1	97
315	17413			1	
321	17745			1	
327	18077			1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 15
TIME 13:58 EST
START 605500E.4751200N

JUNE 12,1982
INPLUME 23 KM DOWNWIND
305 m ALTITUDE
END 588100E.4756100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	40			<1	
6	239			<1	94
11	439			<1	106
17	678			<1	110
23	918			<1	108
28	1117			<1	107
34	1357			<1	106
40	1596				101
46	1836				95
57	2275			<1	
62	2514			<1	
68	2753			<1	
74	2953			<1	104
80	3192			<1	114
86	3432			<1	110
91	3631			<1	114
98	3911			<1	128
103	4110				129
109	4350				121
115	4589				118
120	4789			1	115
126	5028			<1	122
132	5267			<1	122
138	5507			<1	116
143	5706			<1	110
149	5946			<1	117
155	6185			<1	120
161	6425				118
166	6624				91
172	6864				78
178	7103			1	89
183	7302			<1	89
189	7542			<1	
195	7781			<1	
201	8021			<1	
218	8699			<1	88
224	8939				93

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
					83
230	9178				119
235	9378			<1	114
241	9617			1	84
246	9817			1	89
252	10056			<1	91
258	10295			<1	90
264	10535			<1	90
270	10774			<1	98
275	10974				100
281	11213				97
287	11452				96
293	11692				99
298	11892				86
304	12131			<1	99
310	12370			<1	97
315	12570			1	100
321	12809			1	100
327	13049			<1	
333	13288				92
338	14206				77
361	14406			1	90
367	14645			<1	90
373	14884			1	82
378	15084			<1	74
385	15363			1	91
390	15563			1	86
396	15802			1	83
402	16042				86
407	16241				102
413	16481				119
419	16720			1	105
425	16959			<1	122
430	17159			1	168
436	17398			<1	47
442	17638			<1	120
448	17877			<1	86
453	18077			1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 16
TIME 14:06 EST
START 588100E.4756100N

JUNE 12,1982
INPLUME 23 KM DOWNWIND
229 m ALTITUDE
END 605500E.4751200N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
0	255				79
11	468				76
17	722				79
23	978			<1	65
28	1191			<1	66
34	1446			<1	61
40	1701			<1	63
46	1957			<1	56
51	2169			<1	57
57	2424			<1	50
63	2680				52
69	2935				57
74	3147				57
80	3403				45
86	3658			<1	45
91	3871			<1	
98	4168			<1	
103	4381			<1	
109	4636			<1	
115	4891			<1	91
120	5104			<1	79
126	5359				78
132	5614				87
138	5870				89
143	6082			<1	99
149	6338			<1	99
155	6593			<1	87
161	6848			<1	93
166	7061			<1	101
172	7316			<1	100
178	7571			<1	92
183	7784				99
189	8039				79
195	8294				91
201	8549				91
206	8762				87
212	9017			<1	87
218	9272			<1	84
224	9528			<1	89
230	9783			1	
235	9995			1	
258	10974				84
264	11229			1	92
270	11484			1	88
275	11697			1	80
281	11952			1	82
287	12207			1	84
293	12462			1	89
298	12675			1	88
304	12930				81
310	13185				79
315	13398				82
321	13653				71
327	13908			1	99
333	14164			1	86
338	14376			<1	97
344	14632			1	105
350	14887			1	106
356	15142			<1	108
361	15355			1	112
367	15610				114
390	16588			1	
396	16843			<1	106
402	17099			1	111
407	17311			<1	108
413	17566			1	95
419	17822			1	88
425	18077			1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 17
TIME 14:15 EST
START 605500E.4751200N

JUNE 12,1982
INPLUME 23 KM DOWNWIND
153 m ALTITUDE
END 588100E.4756100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	40				100
6	274				104
11	502				98
17	775				94
21	1050				95
26	1278			1	78
31	1552			1	88
40	1926			1	87
46	2199			2	78
51	2378			1	59
57	2612			1	65
62	2876			1	88
67	3150				85
74	3378				94
80	3652				78
86	3926			<1	81
91	4154			<1	79
98	4478			<1	68
103	4702			<1	60
109	4976			<1	80
115	5250			<1	
120	5478			1	
128	6230				96
140	6528			<1	94
149	6802			<1	85
155	7078			<1	92
161	7326			<1	86
166	7578			<1	85
172	7852			<1	90
178	8126			<1	90
183	8354				91
189	8628				93
195	8901				80
201	9176			<1	89
206	9404			<1	80
212	9677			<1	69
218	9951			<1	72

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppt	O3 ppb
224	10225			1	80
230	10498			<1	104
235	10727			1	107
241	11001			1	112
246	11229				110
254	11584			1	
259	11825			1	
265	12099			1	97
271	12327			1	89
287	13111			1	86
287	13375			1	101
293	13600			1	104
304	13877				114
310	14151				110
315	14379				97
321	14653				89
327	14927			1	97
333	15201			1	80
338	15429			1	91
344	15703			1	93
350	15977			1	82
356	16253			1	86
361	16479				80
367	16753				92
372	17027				78
378	17255				92
385	17575			1	97
390	17803			1	
396	18077			1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 18
TIME 14:37 EST
START 618300E.4772600N

JUNE 12,1982
BACKGROUND 50 KM DOWNWIND
VARIABLE ALTITUDE
END 623700E.4762300N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
					111
6	126				107
11	249				104
17	385			1	104
22	520			1	108
28	656			1	111
34	794			1	112
40	935				110
46	1081				110
52	1227			1	112
57	1364			1	
63	1505			1	
69	1642			1	103
75	1779			1	107
81	1914			1	108
86	2037			1	103
90	2137				97
96	2278			1	94
102	2424			1	99
108	2570			1	102
113	2701			1	104
119	2819				107
125	2964				105
130	3088			1	106
136	3207			1	106
142	3329			1	104
148	3475				105
154	3711				106
159	3824			1	108
165	3960			1	108
171	4095			1	105
176	4208				107
182	4344				106
191	4548			1	
197	4684			1	
202	4797			1	
208	4932				106

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
224	5283				102
230	5324			1	104
236	5717			1	110
241	5453			1	111
247	5589				109
252	5702				112
258	5827			1	110
264	5970				114
270	6109				111
275	6222				112
281	6358				114
287	6494				114
293	6629				112
298	6743				112
304	6873				114
310	7014				114
316	7150				115
321	7263				114
327	7399				114
359	8127				110
364	8226				114
370	8372				110
376	8507				114
382	8643				110
387	8756				108
393	8892				107
399	9028				105
405	9163				109
410	9277				105
416	9412				107
422	9548				105
427	9661				107
433	9797				102
442	10001				110
448	10136				105
453	10250				104
459	10385				107

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 18 ...CONTINUED
TIME 14:37 EST
START 618300E,4772600N

JUNE 12,1982
BACKGROUND 50 KM DOWNWIND
VARIABLE ALTITUDE
END 623700E,4762300N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb	TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
465	10521				107						
471	10657				107						
499	11290				103						
505	11426				103						
511	11562				90						

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 7
PASS 19
TIME 14:46 EST
START 623700E,4762300N

JUNE 12,1982
BACKGROUND 50 KM DOWNWIND
VARIABLE ALTITUDE
END 616900E,4781800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
					125
6	262				125
11	482				127
17	745		1		125
22	1008		1		128
28	1272		1		127
34	1491				129
40	1754				128
45	2017		1		129
52	2280		1		131
57	2499		1		131
63	2679				102
69	3902		1		105
94	4122		1		100
100	4735				100
106	4648				101
112	4911				99
118	5174		1		99
123	5393		1		99
129	5656		1		99
135	5919				100
140	6139				99
145	6402		1		99
151	6665		1		99
159	6928		1		99
164	7191		1		98
169	7410				99
175	7673		1		97
181	7936		1		97
186	8155		1		96
192	8419		1		96
198	8682				92
209	9164		1		
215	9427		1		
224	9822				95
230	10085				94
235	10304				93

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
241	10567				94
247	10830				95
252	11049				97
258	11312				96
264	11575				97
270	11839				96
275	12058				96
281	12321				94
287	12584				96
293	12847				97
299	13066				98
304	13329				98
310	13592				96
316	13855				95
321	14075				99
327	14338				99
333	14601				101
364	15950				97
370	16213				97
376	16476				99
382	16739				98
387	16958				98
393	17221				97
399	17485				95
405	17748				98
410	17967				99
416	18230				98
422	18587				96
427	18722				97
433	18985				97
439	19249				97
445	19512				94
451	19775				95
456	19994				93
462	20257				91
468	20520				97

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 1
TIME 8:31 EST
START 586400E.4745400N

JUNE 13,1982
INPLUME 11 KM DOWNWIND
229 m ALTITUDE
END 576000E.4754800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
4	221		40	1	
11	557		40	1	
18	855		38	1	
25	1206		59		
34	1708		38	1	
41	2060		46	1	76
48	2462		44	1	79
57	2964		44	1	79
64	3316		40	1	82
72	3818		38	1	84
79	4169		38		86
87	4671		55		
94	4723		40		
102	5125		38		
109	5477		40	1	84
117	5979		44	1	88
124	6230		40	1	89
132	6632		38	1	85
139	6984		109		54
147	7386		141		50
155	7788		93	1	60
162	8140		111	1	83
170	8542		75	1	90
177	8993		62	1	93
185	9295		47	1	79
192	9647		77	1	84
200	10049		86		84
207	10401		78		82
215	10803		80	1	89
222	11205		53	1	
230	11557		67	1	
238	11958		86	1	
245	12310		71	1	57
253	12712		62	1	61
260	13064		38		60
268	13466		60		62
275	13818		53	1	65

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 2
TIME 8:37 EST
START 576000E.4754800N

JUNE 13,1982
INPLUME 11 KM DOWNWIND
305 m ALTITUDE
END 586400E.4745400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
			14		
4	212		101	<1	71
[illegible]	372		52	<1	72
11	584		51	<1	72
15	797		<2	<1	71
19	1009		<2	<1	68
23	1221		143	<1	67
26	1381		248		66
30	1593		241		69
34	1805		206		73
38	2018		104	<1	76
41	2177		88	<1	75
45	2390		<2	<1	76
49	2602		<2	<1	87
53	2814		45	<1	103
57	3027		<2	<1	85
60	3186		28	<1	93
64	3398		<2	<1	96
68	3611		<2	<1	97
72	3823		87	<1	92
75	3983		234	<1	95
79	4195		220	<1	96
83	4407		<2	<1	98
87	4620		146		90
90	4779		384		
94	4991		253		
98	5204		<2		
102	5416		<2	<1	
106	5629		26	<1	
109	5788		1266	<1	
113	6000		2268	<1	38
117	6213		1226	<1	67
121	6425		<2	<1	62
124	6584		<2	<1	48
128	6797		366	<1	59
132	7009		193	<1	70
136	7222		<2	<1	68

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
139	7381		<2	<1	57
143	7593		296	<1	40
147	7806		1571		56
151	8018		979		76
155	8231		<2		76
158	8390		<2		70
162	8602		<2	<1	62
166	8815		249	<1	56
170	9027		765	<1	67
173	9186		331	<1	72
177	9399		<2	<1	57
181	9611		<2	<1	76
185	9824		<2	<1	78
189	10036		<2	<1	79
192	10195		<2	<1	76
196	10408		<2	<1	77
200	10620		79	<1	78
204	10833			<1	79
207	10992		22		77
211	11204		<2		74
215	11417		32		62
219	11629		22		65
223	11841		<2	<1	81
226	12001		<2	<1	80
230	12213		15	<1	
234	12426		<2	<1	
238	12638		27	<1	
241	12797		128	<1	
245	13010		18	<1	
249	13222		<2	<1	
253	13434		<2	<1	68
256	13594		<2	<1	63
260	13806		62	<1	74
264	14019		14	<1	70

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 3
TIME 8:47 EST
START 586400E.4745400N

JUNE 13,1982
INPLUME 8 KM DOWNWIND
305 m ALTITUDE
END 578500E.4746600N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
					81
4	122		18	<1	91
7	221		2	1	90
11	337		22	1	93
15	474		15		97
18	600		22		94
22	726		170		100
26	821		<2		96
29	948		<2		100
34	1074		47	1	99
38	1200		261	<1	94
41	1295		<2	1	100
45	1421		26	1	96
49	1548		174	<1	102
53	1674		24	<1	104
57	1800		<2	<1	96
60	1895		<2	1	106
64	2021		40	1	107
68	2148		144	1	110
72	2274		<2	<1	108
76	2369		14	<1	109
79	2495		24		109
83	2621		15		108
87	2748		<2		108
91	2843		<2	<1	106
94	2969		96	<1	105
98	3095		44	<1	
102	3222		98	<1	
106	3348		151	<1	
109	3443		<2	<1	
113	3569		2	<1	
117	3695		<2	<1	
121	3822		58	<1	87
124	3916		161	<1	85
128	4043		75	<1	88
132	4169		2	<1	87
136	4295		<2	<1	86

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
139	4390		108		90
143	4516		474		88
147	4643		1049		42
151	4769		1760		58
155	4895		947	1	90
158	4990		994	1	87
162	5117		1429	1	40
166	5243		1507	1	48
170	5369		1742	1	49
173	5464		1972	1	51
177	5590		422	1	59
181	5717		445	1	66
185	5843		422	1	77
189	5969		2	1	86
192	6064		2	1	87
196	6190		2		87
200	6317		2		84
204	6443		2		84
207	6538		2		87
211	6664		<2	1	91
215	6790		2	1	89
219	6917		2	1	88
223	7043		2	1	87
226	7138		2	1	87
230	7264		121	1	87
234	7391		2	1	87
238	7517		2	1	
242	7612		47	1	
245	7738		117	1	
249	7864		2	1	
253	7991		14	1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 4
TIME 8:52 EST
START 578500E,4746600N

JUNE 13,1982
INPLUME 8 KM DOWNWIND
305 m ALTITUDE
END 588900E,4745100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
					50
[illegible]	[illegible]		40		52
[illegible]	[illegible]		57		53
11	567		49	1	53
15	[illegible]		36	1	45
19	979		36	1	51
23	1135		36	1	55
26	1339		36	1	61
30	1545		63	1	61
34	1751		36	1	62
38	1957		51	1	66
41	2112		56	1	72
45	2318		44	1	71
49	2524		36	1	75
53	2730		36	1	74
57	2936		51	1	
60	3090		44		
64	3297		36		
68	3503		51		
72	3709		49	1	
75	3863		36	1	
79	4069		40	1	69
80	4275		36	1	72
87	4481		40	1	74
90	4636		36	1	72
94	4842		45	1	75
98	5048		45	1	50
102	5254		127	1	41
106	5460		265	1	51
109	5614		289	1	44
113	5820		356	1	47
117	6026		514	1	48
121	6232		634		48
124	6387		529		55
128	6593		358		64
132	6799		232	1	59
136	7005		106	1	65

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
139	7160		70	1	71
143	7366		85	1	75
147	7572		63	1	83
151	7778		52	1	85
155	7984		36	1	87
158	8138		36	1	86
162	8344		42	1	85
166	8550		43	1	90
170	8756		36	1	90
173	8911		36	1	88
177	9117		36		93
181	9323		36		95
185	9529		36		96
189	9735		68		96
192	9890		53	1	96
196	10096		36	1	
200	10302		44	1	
204	10508				121

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 5
TIME 8:57 EST
START 588900E.4745100N

JUNE 13,1982
INPLUME 8 KM DOWNWIND
381 m ALTITUDE
END 578500E.4746600N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
					122
4	133		40	<1	124
7	332		40	<1	126
11	565		40	1	128
15	797		36	<1	129
19	030		36	1	130
23	762		46	<1	131
26	962		36	<1	130
30	994		36	<1	132
34	1127		36	<1	126
38	1260		36		128
41	1359		40		130
45	1492		36		129
49	1624		32		129
53	1757		36	<1	128
57	1889		51	1	140
01	1989		50	<1	141
04	2121		36	<1	139
08	2254		36	<1	146
12	2387		55	<1	
15	2486		39	1	
19	2619		36	<1	
23	2751		36	<1	
27	2884		36	<1	
30	2987		36	<1	
34	3116		40	<1	
38	3248		36		73
42	3381		36		82
46	3514		46		78
49	3617		40		74
53	3746		40	<1	85
57	3878		36	<1	91
01	4011		36	<1	94
04	4110		36	<1	97
08	4242		36	1	97
12	4375		44	<1	100
16	4508		36	<1	100

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
139	4807		38	<1	105
143	4740		44	1	109
147	4873		36	1	104
151	5006		50	1	116
155	5138		33	1	112
158	5237		36		111
161	5370		46		
166	5502		40		118
170	5635		39		121
173	5734		36	1	124
177	5867		54	1	126
181	6000		44	1	130
185	6132		44	1	126
189	6265		39	1	132
192	6364		41	1	129
196	6497		40	1	128
200	6629		36	1	142
204	6762		55	1	150
207	6861		39	1	151
211	6994		36	1	
215	7127		36	1	
219	7259		36		
223	7392		36		
226	7491		36		
230	7624		36		
234	7756		36	<1	85
238	7889		36	<1	91
241	7988		51	1	91
245	8121		45	1	90
249	8254		50	1	91
253	8386		45	1	92
256	8485		38	1	97
260	8618		40	1	95
264	8751		40	1	98
268	8883		48	1	99
272	9016		39	1	97
275	9115		50	<1	95

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 5 ...CONTINUED
TIME 8:57 EST
START 588900E,4745100N

JUNE 13,1982
INPLUME 8 KM DOWNWIND
381 m ALTITUDE
END 578500E,4746600N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb	TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
[illegible]	9248		58		90						
283	9381		40		99						
287	9513		44		101						
290	9617		36		100						
294	9745		36	<1	102						
298	9878		54	1	97						
302	10010		40	<1	101						
305	10110		68	<1	105						
309	10242		42	<1	106						
313	10375		36	<1	105						
317	10508		49	<1							

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 6
TIME 9:03 EST
START 578500E.4746600N

JUNE 13.1982
INPLUME 8 KM DOWNWIND
305 m ALTITUDE
END 588900E.4745100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
4	186		44	<1	102
7	325		<36	<1	99
11	511		<36	<1	99
15	697		49		100
19	883		<36		96
23	1069		<36		85
26	1209		<36		89
30	1395		<36	<1	104
34	1581		50	<1	105
38	1767		44	<1	105
41	1906		40	<1	106
45	2092		44	<1	102
49	2278		<36	<1	98
53	2464		<36	<1	84
57	2650		<36	<1	90
60	2790		<36	<1	110
64	2976		<36	<1	108
68	3162		<36	<1	103
72	3348		<36	<1	107
75	3487		<36		109
79	3673		44		104
83	3859		<36		111
87	4045		<36		109
90	4184		51	<1	115
94	4370		40	<1	109
98	4556		<36	<1	107
102	4742		54	<1	114
106	4928		<36	<1	
109	5068		44	<1	
113	5254		<36	<1	
117	5440		<36	<1	
121	5626		55	<1	
124	5765		44	<1	
128	5951		44	<1	77
132	6137		50		79
136	6323		44		77
139	6463		<36		79

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
143	6649		36		82
147	6835		44	<1	86
151	7021		<36	<1	79
155	7207		50	<1	53
158	7346		117	<1	42
162	7532		231	<1	48
166	7718		256	<1	44
170	7904		282	<1	59
173	8043		233	<1	65
177	8229		140	<1	80
181	8415		65	<1	81
185	8601		<36	<1	80
189	8787		<36	<1	78
192	8927		<36		80
196	9113		38		73
200	9299		43		79
204	9485		<36		77
207	9624		<36	<1	70
211	9810		40	<1	71
215	9996		<36	<1	72
219	10182		<36	<1	76
223	10368		<36	<1	79
226	10508		40	<1	80

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 7
TIME 9:14 EST
START 593100E,4749300N

JUNE 13,1982
INPLUME 16 KM DOWNWIND
305 m ALTITUDE
END 582400E,4754500N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
7	151		9	1	84
15	337		127	<1	84
22	824		63	1	92
30	1075		<2	1	79
38	1362		<2	1	
45	1612		11	<1	
52	1890		<2		
60	2150		37		65
68	2427		98	<1	68
75	2687		136	<1	80
82	2974		175	<1	84
90	3235		231	<1	73
98	3512		224	<1	67
105	3762		<2	1	68
113	4049		<2		62
121	4326		129		64
128	4587		168	1	65
136	4873		60	<1	70
143	5124		32	<1	66
151	5411		118	<1	61
158	5662		70	<1	60
166	5948		31		61
173	6199		88		69
181	6486		<2		
189	6737		<2	1	
196	7023		44	1	
203	7274		<2	<1	62
211	7561		<2	1	77
219	7847		<2	1	68
226	8098		2		65
234	8385		<2		74
241	8636		32		71
249	8922		63	<1	71
256	9173		75	<1	82
264	9460		31	<1	82
272	9747		22	<1	76
279	9997		16	<1	79

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
287	10284		2		80
294	10535		18		77
302	10822		19		78
309	11072		2	1	81
317	11359		2	1	
324	11610		84	1	
332	11897		27	1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 8
TIME 9:25 EST
START 582400E,4754500N

JUNE 13,1982
INPLUME 16 KM DOWNWIND
381 m ALTITUDE
END 590600E,4750500N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	50		2		102
3	101		209		95
5	125		2		97
11	185		2		97
14	211		2		101
17	286		166		104
20	337		2		104
23	387		2		111
26	438		2		112
29	488		2		
31	522		119		106
34	572		2		103
37	623		61		
40	673		142		
43	724		49		
46	774		21		
49	825		2		
52	875		10		
54	909		12		
57	959		2		
60	1010		49		
63	1060		2		
66	1111		2		85
69	1161		2		89
72	1212		2		87
74	1246		141		92
77	1296		9		97
80	1347				89
83	1397		11		90
86	1448		2		93
89	1498		2		94
92	1549		4		91
94	1582		158		90
98	1650		145		89
100	1683		2		74
103	1734		66		59
106	1784		206		65

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
109	1835		78		86
112	1885		2		89
115	1936		2		91
118	1986		2		86
120	2020		2		75
123	2070		98		87
126	2121		89		90
129	2171		70		85
132	2222		54		75
135	2272		117		87
138	2323		2		88
140	2357		17		95
144	2424		59		87
146	2458		2		86
149	2508		2		89
152	2559		2		93
155	2609		2		89
158	2660		2		86
161	2710		2		90
164	2761		55		88
166	2794		55		86
169	2845		125		84
172	2895		15		84
175	2946		2		86
178	2996		2		92
181	3047		2		87
184	3097		104		
186	3131		2		
189	3181		2		
192	3232		79		
195	3282		47		
198	3333		2		
201	3383		122		
204	3434		68		
207	3484		2		91
209	3518		7		94
212	3569				90

BLANKS ARE MISSING DATA

RUN 8
PASS 8 ...CONTINUED
TIME 9:25 EST
START 582400E,4754500N

JUNE 13,1982
INPLUME 16 KM DOWNWIND
381 m ALTITUDE
END 590600E,4750500N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
215	3619				91
218	3670		8		87
221	3720		<2		86
224	3771		<2		89
227	3821		82		93
230	3872		97		92
233	3945		56		92
236	3956		84		91
238	4006		90		90
241	4057		12		84
244	4107		71		87
247	4158		1383		89
250	4208		3774		72
253	4242		2911		73
255	4292		1380		48
258	4342		691		48
261	4393		379		51
264	4444		647		58
267	4494		742		72
270	4545		274		82
273	4595		<2		79
276	4629		<2		75
278	4680		<2		69
281	4730		2		64
284	4781		<2		64
287	4831		<2		69
290	4882		146		79
293	4932				77
296	4966				68
299	5016				67
301	5067		118		63
304	5117		<2		56
307	5168		<2		53
310	5218		<2		57
313	5269		283		76
316	5319		233		84
319	5370		33		85

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
321	5403		20		85
324	5454		47		84
327	5504				83
330	5555		80		85
333	5605		2		82
336	5656		2		81
339	5706		2		78
341	5740		2		76
344	5791		2		79
347	5841		173		79
350	5892		98		88
353	5942		221		93
356	5992		292		90
359	6043		2		90
361	6077		2		93
364	6127		2		88
367	6178		2		87
370	6228		2		84
373	6279		2		87
376	6329		2		82
379	6380		2		
385	6481		2		
387	6514		2		
390	6565		2		
393	6615		74		
396	6666		246		
399	6716		142		
402	6767		2		
405	6817		2		
407	6851		87		
410	6902		2		
413	6952		2		
416	7003		2		
419	7053		29		
422	7104		47		
425	7154		194		87
427	7188		159		85

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 8 ...CONTINUED
TIME 9:25 EST
START 582400E,4754500N

JUNE 13,1982
INPLUME 16 KM DOWNWIND
381 m ALTITUDE
END 590600E,4750500N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
431	7255		<2		87
433	7289		38		82
436	7339		<2		86
439	7390		<2		87
442	7440		16		88
445	7491		<2		88
448	7541		<2		88
451	7592		121		89
453	7625		192		86
456	7676		<2		86
459	7726		<2		86
462	7777		24		85
465	7827		142		87
468	7878		69		88
471	7928		<2		85
473	7962		<2		90
476	8013		<2		97
479	8063		117		102
482	8114		258		107
485	8164		16		117
488	8215				123
491	8265		15		129
494	8316		68		121
496	8349		<2		116
499	8400		<2		106
502	8450		<2		89
505	8501		<2		80
508	8551		<2		73
511	8602		<2		70
514	8652		<2		69
522	8787		204		76
525	8837		<2		69
528	8888		<2		64
531	8938		89		61
534	8989		93		61
537	9039		63		61
539	9073		<2		63

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
542	9124		16		64

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 10
TIME 9:34 EST
START 593100E,4749400N

JUNE 13,1982
INPLUME 17 KM DOWNWIND
381 m ALTITUDE
END 585200E,4753100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	72		12	<1	88
6	144		<2	<1	88
8	192		<2	<1	87
11	264		<2	<1	90
14	336		197	<1	92
17	407		107	<1	91
20	479		50	<1	90
23	551		109	<1	91
26	623		<2	<1	91
29	695		<2		
31	743		54		92
34	815		160	<1	96
37	887		111	<1	96
40	959		108	<1	94
43	1031		3	<1	96
46	1102		107	<1	95
49	1174		292	<1	98
52	1246		<2	<1	99
54	1294		<2	<1	99
57	1366		10	<1	97
60	1438		43	<1	100
63	1510		145	<1	100
66	1582		<2	<1	100
69	1654		<2	<1	99
72	1726		4	<1	
74	1774		<2	<1	
77	1845		6	<1	
80	1917		59	<1	
83	1989		180	<1	
86	2061		<2	<1	
89	2133		84	<1	
92	2205		83	<1	
94	2253		<2	<1	
98	2349		<2		
100	2397		<2		
103	2468		<2		
112	2684		203		

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
115	2756		60		
118	2828		2		88
120	2876		36		95
123	2948		70		92
126	3020		<2	<1	89
129	3092		<2	<1	
132	3163		13	<1	85
135	3235		2	1	85
138	3307		80	<1	83
140	3355		111	<1	87
144	3451		<2	<1	97
146	3499		<2	1	95
149	3571		28	<1	93
152	3643		145	<1	94
155	3715		111	<1	96
158	3787		<2	<1	97
161	3859		<2	<1	99
164	3930		35	<1	98
166	3978		139	<1	97
169	4050		74	<1	99
172	4122		76		92
175	4194		<2		88
178	4266		<2		94
181	4338		<2		97
184	4410		<2		100
186	4458		19	<1	102
189	4530			<1	101
192	4601			<1	98
195	4673		8	1	97
198	4745		210	1	96
201	4817		<2	1	97
204	4889		<2	<1	101
207	4961		40		95
209	5009		41	<1	84
212	5081		303	<1	75
215	5153		717	<1	75
218	5225		739	<1	81

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 10 ...CONTINUED
TIME 9:34 EST
START 593100E,4749400N

JUNE 13,1982
INPLUME 17 KM DOWNWIND
381 m ALTITUDE
END 585200E,4753100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
221	5296		354	<1	93
224	5368		<2	<1	78
227	5440		26	<1	69
230	5512		386	<1	65
232	5560		1242	<1	67
235	5632		1638		69
238	5704		1264		71
241	5776		287		71
244	5848		<2		
247	5920		<2		
250	5991		<2		
252	6039		<2	<1	
255	6111		<2	<1	
258	6183		<2	<1	
261	6255		47	<1	
264	6327		<2	<1	
267	6399		<2	<1	87
270	6471		83	<1	91
273	6543			<1	90
276	6591		53	<1	87
278	6662		<2	<1	92
281	6734		<2	<1	93
284	6806		<2	<1	82
287	6878		<2	<1	75
290	6950		7	<1	81
293	7022		<2		84
295	7070		<2		91
298	7142		22		84
301	7214				81
304	7286		21		90
307	7357		<2		92
310	7429		<2	<1	
313	7501		<2	<1	
316	7573		<2	<1	89
319	7645		78	<1	
321	7693		242	<1	88
324	7765		96	<1	92

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
327	7837		<2	<1	90
330	7909		<2	<1	84
333	7981		2	<1	97
336	8052		<2	<1	99
339	8124		148	1	95
341	8172		200	<1	88
344	8244		95	1	87
347	8316		79	1	89
350	8388		80	1	90
353	8460		24		85
356	8532				84
359	8604		10		94
361	8652		16		91
364	8724				86

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 11
TIME 9:41 EST
START 585200E,4753100N

JUNE 13,1982
INPLUME 17 KM DOWNWIND
458 m ALTITUDE
END 593100E,4749400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
			19		
7	92		<2		111
9	184		78		117
12	246		<2		115
11	338		6		112
14	430		165		111
17	522		<2		110
20	614		<2		110
23	706		<2		111
26	798		24	<1	114
29	891		78	<1	114
31	952		<2	<1	114
34	1044		<2	<1	116
37	1137		<2	<1	119
40	1229		116	<1	118
43	1321		107	<1	117
46	1417		<2	<1	118
49	1505		<2	<1	118
52	1597		94	<1	121
54	1659		188	<1	
57	1751		49	<1	
60	1843		<2	<1	
63	1935		25	<1	
66	2027		<2	<1	
69	2119		<2	<1	
72	2212		50		
74	2273		30		
77	2365		<2		101
80	2457		<2		98
83	2549		<2		94
86	2642		62	<1	92
89	2734		<2	<1	95
92	2826		<2	<1	95
94	2887		4	<1	95
98	3010		<2	<1	92
100	3072		4	<1	84
103	3164			<1	84

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
106	3256		11	1	86
109	3348		<2	1	87
112	3440		82	1	87
115	3531		84	1	81
118	3625		78	1	80
120	3686		<2	<1	78
123	3778		45	1	73
126	3870		145	1	71
129	3962		14	<1	73
132	4055				77
135	4147				80
138	4239		<2		74
140	4300		21		84
144	4423		147		46
146	4485		452		24
149	4577		1040	1	20
152	4669		1459	1	15
155	4761		1740	1	11
158	4853		1717	<1	19
161	4945		719	<1	11
164	5038		155	1	11
166	5099		217	1	33
169	5191		<2	1	61
172	5283		<2	<1	18
175	5375		<2	<1	24
178	5468		357	<1	11
181	5560		652	1	20
184	5652		761	<1	15
186	5713		882	<1	5
189	5805		841	<1	9
192	5898		1011		
195	5990		1063		
198	6082		72		
201	6174		<2		
204	6266		<2	<1	
207	6358		<2	<1	
209	6420		<2	<1	

BLANKS ARE MISSING DATA

RUN 8
PASS 11 ...CONTINUED
TIME 9:41 EST
START 585200E,4753100N

JUNE 13,1982
INPLUME 17 KM DOWNWIND
458 m ALTITUDE
END 593100E,4749400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
212	6512		<2	<1	
215	6604		<2	<1	83
218	6696		<2	<1	96
221	6788		<2	<1	101
224	6881		<2	<1	100
227	6973		<2	<1	98
230	7065		<2	<1	97
232	7126		3	<1	95
235	7218		<2	<1	93
238	7311		<2	<1	96
241	7403		16	<1	89
244	7495		<2	<1	92
247	7587		<2		94
250	7679		<2		93
252	7741		32		96
255	7833		<2		94
258	7925		<2		100
261	8017		62		99
264	8109		85		94
267	8201		9	<1	103
270	8293		47	<1	103
273	8386		11	<1	102
275	8447		<2	<1	112
278	8539		48	<1	118
281	8631		<2	<1	115
284	8724		8	<1	115

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 12
TIME 9:49 EST
START 593800E, 4749000N

JUNE 13, 1982
INPLUME 17 KM DOWNWIND
534 m ALTITUDE
END 585200E, 4753100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
[illegible]	[illegible]		2		152
[illegible]	147		[illegible]		155
[illegible]	195		<2		155
[illegible]	249		2	<1	152
[illegible]	342		98	<1	150
[illegible]	415		104	<1	153
[illegible]	489		<2	<1	155
[illegible]	562		<2	<1	160
[illegible]	635		2	<1	171
[illegible]	709			<1	168
[illegible]	757		2	<1	172
[illegible]	831		40	<1	174
[illegible]	904		42	<1	173
[illegible]	977		<2	<1	170
[illegible]	1050		<2	<1	168
[illegible]	1124		<2	<1	175
[illegible]	1197		2	<1	177
[illegible]	1270		29	<1	176
[illegible]	1318		3	<1	178
[illegible]	1392				179
[illegible]	1466				181
[illegible]	1539		8		180
[illegible]	1612		47		179
[illegible]	1686		10		179
[illegible]	1759		<2	<1	180
[illegible]	1818		<2	<1	184
[illegible]	1881		41	<1	183
[illegible]	1954		26	<1	182
[illegible]	2028		<2	<1	182
[illegible]	2101		<2	<1	180
[illegible]	2174		108	<1	184
[illegible]	2247		<2	<1	183
[illegible]	2296		<2	<1	
[illegible]	2394		3	<1	
[illegible]	2443		<2	<1	
[illegible]	2516		3		
[illegible]	2589		<2		

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
[illegible]	2662		6	<1	
[illegible]	2736		<2	<1	
[illegible]	2809		<2	<1	
[illegible]	2883		<2		
[illegible]	2931		<2		105
[illegible]	3005		101		117
[illegible]	3078		<2		108
[illegible]	3151		2		108
[illegible]	3225		2	<1	114
[illegible]	3298		2	<1	115
[illegible]	3371		[illegible]	<1	115
[illegible]	3420			<1	114
[illegible]	3518		<2	<1	116
[illegible]	3567		2	<1	117
[illegible]	3640		[illegible]	<1	118
[illegible]	3713		2	<1	117
[illegible]	3787		<2	<1	119
[illegible]	3860		4	<1	
[illegible]	3933		<2	<1	
[illegible]	4006		<2	<1	119
[illegible]	4055		2	<1	122
[illegible]	4129		2	<1	122
[illegible]	4202		2	<1	120
[illegible]	4275		4		122
[illegible]	4348		2		125
[illegible]	4422		98		124
[illegible]	4495		57		125
[illegible]	4544		<2		123
[illegible]	4617		41		126
[illegible]	4690		[illegible]	<1	127
[illegible]	4764			<1	129
[illegible]	4837		4	<1	128
[illegible]	4910		<2	<1	131
[illegible]	4984		<2	<1	129
[illegible]	5057		<2	<1	132
[illegible]	5106		2	<1	129
[illegible]	5179		59	<1	131

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 12 ...CONTINUED
TIME 9:49 EST
START 593800E,4749000N

JUNE 13,1982
INPLUME 17 KM DOWNWIND
534 m ALTITUDE
END 585200E,4753100N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
315	5252		5	<1	130
319	5326		<2	<1	131
321	5399		4	<1	129
324	5472		2	<1	130
327	5545		23	<1	127
330	5618		2	<1	130
333	5688		117	<1	129
336	5761		122		
339	5814		<2		
341	5887		<2		
344	5961		61		
347	6034		62		
350	6107		7		
353	6156		5	<1	
356	6229		45	<1	
358	6302		<2	<1	
361	6376		<2	<1	107
364	6449		3	<1	104
367	6522		59	<1	
370	6596		101	<1	
373	6669		7	<1	101
376	6718			<1	106
378	6791		2	<1	105
381	6865		79	<1	105
384	6938		63	<1	106
387	7011		<2	<1	106
390	7084		<2	<1	105
393	7158		<2	<1	107
395	7207		4		104
398	7280		40		
401	7353		44		108
404	7426		<2		108
407	7500		99		106
410	7573		47	<1	104
413	7646		<2		103
416	7720		103		104
419	7793		<2	<1	106

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
421	7842		<2	<1	105
424	7915		85	1	106
427	7988		86	<1	
430	8062		2	<1	102
433	8135		2	<1	104
436	8208		41	<1	104
439	8281		20	1	107
441	8330		4	1	105
444	8404		80	1	101
447	8477		2	1	102
450	8550		2	1	106
453	8623		2	<1	102
456	8697		2		104
459	8770		2		104
461	8819		2		104
464	8892		477		104
467	8965		28		103
470	9039		2		105
473	9112		2	1	106
476	9185		2	<1	
479	9259		2	<1	
482	9332			1	
485	9405		4	1	
487	9454		2	1	
490	9527		8	<1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 13
TIME 9:56 EST
START 585200E,4753100N

JUNE 13,1982
INPLUME 17 KM DOWNWIND
229 m ALTITUDE
END 593100E,4749400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
			26		
3	78		<2	<1	
6	152		<2	<1	
8	207		134	<1	
11	278		83	<1	
14	355		<2		
17	431		78		69
20	507		216		64
22	583		<2		67
25	659		<2		67
28	735		83	<1	59
31	786		248	<1	59
34	862		<2	<1	56
37	938		<2	1	57
40	1014		155	<1	45
43	1090		81		39
46	1167		176		45
49	1243		31	<1	50
52	1319		<2	<1	47
54	1369		<2	1	51
57	1445		77	1	51
60	1521		139	<1	52
63	1598		<2	<1	50
66	1674		<2	1	49
69	1750		90	<1	52
72	1826		<2		46
74	1877		67		44
77	1953		158		47
80	2029		161		51
83	2105		70		44
86	2181		<2		30
89	2257		<2		28
92	2333		220	<1	42
94	2384		90	<1	49
98	2485		47	<1	45
100	2536		34	<1	44
103	2612			<1	51
106	2688		32	<1	51
109	2764		<2	<1	47
112	2840		<2	<1	52
115	2916		191	<1	50
118	2992		446	1	45
120	3042		<2		54
123	3119		<2	<1	51
126	3195		<2	<1	50
129	3271		61	<1	48
135	3423		170		
138	3500		<2		
140	3550		<2		
144	3652		47		
146	3702		<2		
149	3779		<2	<1	
152	3855		<2	<1	
155	3931		75	<1	
158	4007		155	1	60
161	4083		42	<1	50
164	4159		2	<1	76
166	4210		<2		71
169	4286		<2	1	75
172	4762		<2	1	80
175	4438		17	<1	81
178	4514		<2	<1	80
181	4590		<2	<1	82
184	4666		12	<1	88
186	4717			<1	88
189	4793		20	<1	87
192	4869		102		87
195	4945		<2		85
198	5021		<2		81
201	5097		<2		87
204	5173		150		80
207	5249		92		81
209	5300		204		86
212	5376		279		84

BLANKS, ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 13 ...CONTINUED
TIME 9:56 EST
START 585200E,4753100N

JUNE 13,1982
INPLUME 17 KM DOWNWIND
229 m ALTITUDE
END 593100E,4749400N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
215	5452		<2	<1	96
218	5528		<2		88
221	5604		49		89
224	5680		<2	<1	89
227	5757		<2	<1	92
230	5833		<2	<1	90
232	5887		<2	<1	92
235	5959		<2	<1	93
238	6035		62	<1	88
241	6112		269	<1	97
244	6188		94	<1	98
247	6264		<2	<1	98
250	6340		16		98
252	6390		<2		98
255	6467		<2		99
258	6543		<2		98
261	6619		<2		99
264	6695		116		98
267	6771		142		98
270	6847		332		95
273	6923		414		
276	6974		<2		
278	7050		<2		
281	7126		<2		
284	7202		<2		
287	7278		<2		
290	7354		148		
293	7430		70		
295	7481		<2		96
298	7557		<2		
301	7633		<2		78
304	7709		<2		72
307	7785		64		73
310	7861		62		72
313	7937		26		67
316	8013		<2		40
319	8090		<2		22

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
321	8140		122		21
324	8216		126		49
327	8292		72		40
330	8368		<2		14
333	8445		<2		15
336	8521		106		55
339	8597		36		27
341	8647		2		22
344	8724		12		

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 14
TIME 10:02 EST
START 605400E,4766600N

JUNE 13,1982
INPLUME 40 KM DOWNWIND
305 m ALTITUDE
END 597200E,4774800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
1	97		15	1	92
4	194		63	<1	104
7	288		2	1	109
11	388		16	<1	111
14	482		<2	1	99
17	579		2	1	98
20	646		107		81
23	747		71		89
26	840		2		104
29	937		<2		103
31	1001		<2		65
34	1096		152		69
37	1195		<2		97
40	1292		<2	<1	95
43	1389		63	1	107
46	1486		220	<1	110
49	1582		93	1	89
52	1680		<2	1	62
54	1744		<2	1	69
57	1841		125	1	
60	1938		32	1	
63	2035		<2	1	
66	2132		<2	1	
69	2229		<2	1	
72	2326		<2	1	
74	2390		55	1	
77	2487		10	1	
80	2584			1	
83	2681				84
86	2778		10		90
89	2875		107		90
92	2972		<2		84
94	3036		<2		70
98	3166		144		61
100	3250		<2		63
103	3327		<2	<1	65
106	3424		<2	<1	63

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
109	3521		283	1	84
112	3618		210	1	82
115	3715		2	1	82
118	3812		14	1	87
120	3879		39	1	82
123	3976		12	1	82
126	4070		33	1	86
129	4167		70	1	85
132	4264		207	1	84
135	4361		8	1	85
138	4458		3	1	84
140	4522		79		84
144	4652		2		84
146	4716		1		83
149	4813		22		83
152	4910		46		83
155	5007		1		83
158	5104		1		84
161	5201		3	1	87
164	5298		186	1	84
166	5362		171		86
169	5459		1		85
172	5556		70	1	84
175	5653		37	1	82
178	5750		2	1	82
181	5847		2	1	85
184	5944		1	1	86
186	6008		1	1	87
189	6105		97	1	86
192	6202		202	1	85
195	6299		<2	1	85
198	6396		<2	1	
201	6493		104	<1	
204	6590		87		
207	6687		56		
212	6846		71		
215	6945		74		

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 14 ...CONTINUED
TIME 10:02 EST
START 605400E,4766600N

JUNE 13,1982
INPLUME 40 KM DOWNWIND
305 m ALTITUDE
END 597200E,4774800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
118	7041		74		
121	7179		2	1	72
124	7318		2	1	73
127	7457		90	<1	74
130	7430		64	1	75
133	7494		2	1	71
136	7591		92	1	70
139	7688		172	1	70
142	7785		<2	1	71
145	7882		2	1	70
148	7979		2	1	69
151	8076		<2	1	70
154	8140		154	1	69
157	8137		41	1	67
200	8334		<2	1	67
203	8431		2	1	68
206	8528		<2		65
209	8625		81		65
212	8722		244		68
215	8819		63		67
218	8887		<2		66
221	8980		22	<1	62
224	9077		38	<1	61
227	9174		<2	<1	61
230	9271		55	<1	60
233	9368		<2	<1	57
236	9465		59	<1	57
239	9529		270	<1	60
242	9626		119	<1	59
245	9723		<2	<1	60
248	9820		<2	<1	57
251	9917		<2	<1	60
254	10014		56	<1	58
257	10111		38	<1	59
300	10208		<2	<1	58
303	10304		<2	<1	58
306	10369		15		60
324	10466		<2		60
327	10563		2		60
330	10660		<2		61
333	10757		82		60
336	10854		34		
339	10951		15		
341	11015			<1	
344	11112		16	<1	
347	11209		40	<1	
350	11306		<2	<1	
353	11403		2	<1	
356	11500		2	<1	
359	11597		<2	<1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 15
TIME 10:09 EST
START 597200E,4774800N

JUNE 13,1982
INPLUME 40 KM DOWNWIND
381 m ALTITUDE
END 612000E,4759900N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
				<1	47
3	123		9	<1	43
6	245		86	<1	42
8	327		<2		41
11	449		<2		41
14	572		<2		41
17	695		177		37
20	817		210		5
23	940		<2	<1	5
26	1062		<2	<1	29
29	1185		258	<1	36
31	1267		224	<1	28
34	1389		<2	<1	32
37	1512		46	<1	25
40	1634		56	<1	
43	1757		<2	<1	
46	1879		33	<1	
49	2002		<2	<1	
52	2125		34	<1	
54	2206		35	<1	
57	2329		<2	<1	
60	2452		<2	<1	
63	2574		156	<1	
66	2697		88		78
69	2819		<2		78
72	2942		<2		90
74	3024		97		92
77	3146		8.		94
80	3269				95
83	3391		3		96
86	3514		97	<1	102
89	3636		179	<1	107
92	3759		<2	<1	111
94	3841		<2	<1	112
98	4004		22	<1	114
100	4086		76	<1	103
103	4208		<2	<1	104

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
106	4331		<2	<1	107
109	4454		4	<1	123
112	4576		23	<1	127
115	4699		43	<1	123
118	4821		52	<1	115
120	4903		<2	<1	119
123	5026		<2		138
126	5148		<2		137
129	5271		140		126
132	5393		9		126
135	5516				131
138	5638		12		131
140	5720		<2		133
144	5884		<2	<1	125
146	5965		<2	<1	124
149	6088		101	<1	123
152	6210		178	<1	122
155	6333		262	<1	122
158	6456		39	<1	125
161	6578		<2	<1	132
164	6701		<2	<1	139
166	6782		96	<1	133
169	6905		165	<1	128
172	7028		165	<1	131
175	7150		21	<1	136
178	7273		<2	<1	
181	7395		<2	<1	
184	7518		<2	<1	
186	7600		7		
195	7967		55		
198	8090		83		
201	8213		30	<1	
204	8335		32	<1	91
207	8458		<2	<1	71
209	8539		<2	<1	65
212	8662		<2	<1	73
215	8785		6	<1	76

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 15 ...CONTINUED
TIME 10:09 EST
START 597200E,4774800N

JUNE 13,1982
INPLUME 40 KM DOWNWIND
381 m ALTITUDE
END 612000E,4759900N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
213	8907		5	<1	77
221	9030			<1	77
224	9152		5	<1	65
227	9275		72	<1	29
230	9397		<2	<1	<5
232	9479		195	<1	5
235	9602		92	<1	5
238	9724		<2	<1	15
241	9847		14	<1	<5
244	9969		<2		10
247	10092		<2		<5
250	10215		<2		<5
252	10296		<2		<5
255	10419		<2		14
258	10541		99		<5
261	10664		181	<1	<5
264	10787		<2	<1	<5
267	10909		<2	<1	<5
270	11032		47	<1	<5
273	11154		<2	<1	42
275	11236		<2		16
278	11359		27		30
281	11481		<2	<1	28
284	11604		<2	<1	28
287	11726		<2	<1	7
290	11849		<2	<1	<5
293	11971		188	<1	<5
295	12053		33	<1	<5
298	12176		45	<1	<5
301	12298		<2	<1	<5
304	12421		<2		<5
307	12544		<2		<5
310	12666		<2		<5
313	12789		138		<5
316	12911		85		<5
319	13034		<2		
321	13116		<2	<1	

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
324	13238		<2	<1	
327	13361			<1	
330	13483			<1	
333	13606		2	<1	
336	13728		192	<1	
339	13851		103	<1	
341	13933		<2	<1	21
344	14055		83	<1	5
347	14178		105	<1	5
350	14300		2	<1	5
353	14423		2	<1	119
356	14546		2	<1	170
359	14668			<1	48
361	14750			<1	11
364	14872				110
367	14995		6		102
370	15118		28		34
373	15240		<2		5
376	15363		2		48
379	15485		<2		127
382	15608		<2	<1	21
385	15730		72	<1	122
387	15812		119	<1	97
390	15935		9	<1	<5
393	16057			<1	<5
396	16180		7	<1	<5
399	16302		127	<1	<5
402	16425		<2	<1	102
405	16548		<2	<1	201
407	16629		48	<1	207
410	16752		26	<1	124
413	16874		<2	<1	118
416	16997		<2	<1	280
419	17120		66	<1	257
422	17242		<2	<1	84
425	17365		<2		<5
427	17447		<2		126

BLANKS ARE MISSING DATA

RUN 8
PASS 15 ...CONTINUED
TIME 10:09 EST
START 597200E, 4774800N

JUNE 13, 1982
INPLUME 40 KM DOWNWIND
381 m ALTITUDE
END 612000E, 4759900N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb	TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
421	17610		<2		167						
433	17692		<2		208						
436	17814		4		418						
439	17937		<2		403						
442	18059		<2	<1	367						
445	18182		<2	<1	306						
448	18305		2	<1	325						
451	18427		<2	1	343						
453	18509		2	1	333						
456	18631		<2	1							
459	18754		43	1							
462	18877		4	1							
465	18999		119	1							
468	19122		48	1							
471	19244		7	1							
473	19326			1							
476	19449		<2	1							
479	19571		141	1							
482	19694		28	1	71						
485	19816		<2		83						
488	19939		<2		86						
491	20061		<2		89						
494	20184		<2		75						
496	20266		143		73						
499	20388		27		95						
502	20511		<2	1	112						
505	20633		21	1	112						
508	20756		255	1	116						
511	20879		15	1	92						
514	21001				94						

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 16
TIME 10:23 EST
START 603300E,4757800N

JUNE 13,1982
INPLUME 28 KM DOWNWIND
305 m ALTITUDE
END 590400E,4763800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
			10		
3	164		51	<1	92
6	327		58	<1	85
8	436		38	<1	90
11	600		<2	<1	98
14	763		27	<1	101
17	927		33	<1	99
20	1090		28	<1	93
23	1254		53	<1	91
26	1417		30	<1	90
29	1581		39		85
31	1690		<2		87
34	1853		31		80
37	2017		13		92
40	2180		<2		96
43	2344		10		89
46	2507		259		85
49	2671		99		83
52	2835		<2	<1	85
54	2944		<2	<1	85
57	3107		<2	<1	84
60	3271		<2	<1	
63	3434		85	<1	
66	3598		54	<1	
69	3761		<2	<1	
72	3925		15	<1	
74	4034		148	<1	
77	4197		249	<1	
80	4361		<2	<1	
83	4524		<2	<1	
86	4688		71	<1	78
89	4851		148	<1	68
92	5015		386	<1	72
94	5124		164		66
98	5342		<2		69
100	5451		<2		67
103	5615		179		64

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
106	5778		167		68
109	5942		167		68
112	6105		189	<1	66
115	6269		194	<1	64
118	6432		455	<1	57
120	6541		562	1	56
123	6705		523	<1	59
126	6868		464	1	60
129	7032		182	<1	63
132	7195		71	<1	66
135	7359		49	<1	64
138	7522		2	<1	65
140	7631		2	<1	67
144	7849		19	<1	71
146	7958		<2	<1	74
149	8122		2	<1	79
152	8286		119		82
155	8449		<2		81
158	8613		2		80
161	8776		<2		84
164	8940		2		87
166	9049		59		87
169	9212		<2	1	85
172	9376		<2	<1	84
175	9539		<2	<1	81
178	9703		74	<1	80
181	9866		40	<1	89
184	10030		155	<1	90
186	10139		118	<1	93
189	10302		80	<1	92
192	10466		45	<1	94
195	10629		<2	<1	96
198	10793		61	<1	97
201	10956		329	<1	
204	11120		86	<1	
207	11284		<2	<1	
209	11393		<2	<1	

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 16 ...CONTINUED
TIME 10:23 EST
START 603300E,4757800N

JUNE 13,1982
INPLUME 28 KM DOWNWIND
305 m ALTITUDE
END 590400E,4763800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
212	11556		6	<1	
215	11720		<2		
218	11883		<2		
221	12047		19		
224	12210		116		82
227	12374		<2		78
230	12537		<2	<1	84
232	12646		16	<1	95
235	12810			<1	94
238	12973			<1	88
241	13137		14	<1	86
244	13300		37	<1	88
247	13464		<2	<1	92
250	13627		219	<1	85
252	13736		343	<1	80
255	13900		<2	<1	80
258	14064		<2	<1	83
261	14227		21	<1	86

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 17
TIME 10:30 EST
START 590400E.4763800N

JUNE 13,1982
INPLUME 28 KM DOWNWIND
381 m ALTITUDE
END 603300E.4757800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
				<1	93
3	122		23	<1	88
6	244		<2	<1	82
9	325		39	<1	67
11	447		<2		62
14	569		<2		89
17	691		127		96
20	813		115		95
23	935		18		98
26	1057		20	<1	97
29	1179			<1	96
31	1260		18	<1	101
34	1382		36	<1	
37	1504		<2	<1	
40	1626		<2	<1	
43	1748		15	<1	
46	1870		<2	<1	
49	1992		71	1	
52	2114		177	<1	
54	2195		<2	<1	
57	2317		53	1	77
60	2439		80	<1	96
63	2561		<2	1	102
66	2683		<2	1	100
69	2805		<2		95
72	2927		152		94
74	3008		222		91
77	3130		138		89
80	3252		<2		88
83	3374		<2		99
86	3496		<2	<1	101
89	3618		38	<1	110
92	3740		43	<1	106
94	3821		<2	<1	90
98	3984		<2	<1	93
100	4065		57	<1	
103	4187		223	<1	95

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
106	4309		231	<1	75
109	4431		44	<1	64
112	4553		<2	<1	61
115	4675		<2	<1	48
118	4797		108	<1	22
120	4879		65	<1	15
123	5000		<2	<1	15
126	5122		<2		24
129	5244		<2		74
132	5366		68		52
135	5488		109		49
138	5610		16		49
140	5691		109		49
144	5853		363	<1	55
146	5935		76	<1	45
149	6057		<2	<1	53
152	6179		3		48
155	6301		41		15
158	6423		212		17
161	6544		203	<1	15
164	6666		327	<1	16
166	6748		524	<1	17
169	6870		188	<1	5
172	6992		<2	<1	
175	7114		<2	<1	
178	7235		82	<1	
181	7357		102	<1	
184	7479		298	<1	
186	7561		535		
189	7683		505		
192	7805		440		
195	7927		315		
198	8048		148		23
201	8170		185		85
204	8292		305	<1	70
207	8414		<2	<1	94
209	8496		<2	<1	92

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 17 ...CONTINUED
TIME 10:30 EST
START 590400E,4763800N

JUNE 13,1982
INPLUME 28 KM DOWNWIND
381 m ALTITUDE
END 603300E,4757800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
211	8619		<2	<1	102
215	8739		<2	<1	120
218	8861		233	<1	95
221	8983		701	<1	90
224	9105		969	<1	89
227	9227		1127	<1	92
230	9349		1607	1	82
233	9471		1666	1	89
236	9552		1011	1	95
238	9674		<2	1	96
241	9796		<2	<1	90
244	9918		<2	<1	90
247	10040		<2		98
250	10162		<2		98
252	10244		<2		86
255	10365		<2		85
258	10487		<2		85
261	10609		<2		75
264	10731		<2	<1	76
267	10853		<2	<1	69
270	10975		<2	<1	73
273	11097		<2		90
275	11178		<2	<1	98
278	11300		<2	<1	86
281	11422		<2	<1	81
284	11544		<2	<1	90
287	11666		<2	<1	86
290	11788		<2	<1	81
293	11910		149	<1	77
295	11991		154	<1	92
298	12113		18	<1	114
301	12235		<2	<1	139
304	12357		15		137
307	12479		74		132
310	12601		18		132
313	12723		<2		
316	12845		<2		

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
319	12967		39		
321	13048		<2		
324	13170		14	<1	
327	13292		56	<1	
330	13414		<2	<1	
333	13536		16	<1	
336	13658		<2	<1	100
339	13780		<2	<1	99
341	13861		57	<1	100
344	13983		13	<1	97
347	14105		11	<1	96
350	14227				93

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 18
TIME 10:37 EST
START 599400E,4760600N

JUNE 13,1982
INPLUME 30 KM DOWNWIND
381 m ALTITUDE
END 604900E,4767000N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
3	71			<1	108
6	141			<1	116
8	188				119
11	259				116
14	329				120
17	400				124
20	470				122
23	541			<1	120
26	611			<1	113
29	682			<1	
31	729			<1	
34	799			<1	
37	870			<1	
40	940			<1	
43	1011			<1	
46	1081			<1	
49	1152			<1	
52	1222			<1	
54	1269			<1	80
57	1340			<1	87
60	1410			<1	103
63	1481			<1	105
66	1551			<1	102
69	1622				94
72	1692				94
74	1739				100
77	1810				99
80	1880				98
83	1951				97
86	2022			<1	94
89	2092			<1	94
92	2163			<1	91
94	2210			<1	99
98	2304			<1	106
100	2351			<1	106
103	2421			<1	96
106	2492			<1	90

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
109	2562			<1	89
112	2633			<1	84
115	2703			<1	79
118	2774			<1	72
120	2821			<1	72
123	2891			<1	74
126	2962				78
129	3032				81
132	3103				80
135	3173				80
138	3244				82
140	3291				84
144	3385				85
146	3432			<1	84
149	3502			1	84
152	3573			1	78
155	3643			<1	78
158	3714			<1	95
161	3784			<1	103
164	3855			<1	100
166	3902			<1	100
169	3972			<1	
172	4043			<1	
175	4114			<1	
178	4184			<1	
181	4255			<1	
195	4584				85
198	4654				82
201	4725				82
204	4795			<1	81
207	4866			<1	81
209	4913			<1	58
212	4983			<1	57
215	5054			<1	80
218	5124			<1	81
221	5195			<1	82
224	5265			<1	85

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 18 ...CONTINUED
TIME 10:37 EST
START 599400E, 4760600N

JUNE 13, 1982
INPLUME 30 KM DOWNWIND
381 m ALTITUDE
END 604900E, 4767000N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
227	5116			<1	64
230	5406			<1	64
232	5452			<1	63
235	5624			<1	63
238	5594			<1	66
241	5665			<1	67
244	5725			<1	70
247	5906				76
250	5876				80
252	5923				76
255	5994				70
258	6065				67
261	6175				66
264	6206			<1	70
267	6276			<1	70
270	6347			<1	69
273	6417			<1	69
276	6464			<1	70
279	6535			<1	70
281	6605			<1	69
284	6676			<1	69
287	6746			<1	64
290	6817			<1	58
293	6887			<1	66
295	6934			<1	76
298	7005			<1	74
301	7075			<1	77
304	7146				79
324	7516			<1	
327	7586			<1	
330	7757			<1	
333	7827			<1	87
336	7898			<1	86
339	7968			<1	89
341	8015			<1	94
344	8086				95
347	8157				95

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
350	8227			<1	91
353	8298				87
356	8368				87
359	8439				85

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 19
TIME 13:02 EST
START 560900E,4741800N

JUNE 13,1982
VERTICAL SPIRAL 15 KM DOWNWIND
VARIABLE ALTITUDE
END 560900E,4741800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
3	9	13			
8	23	<2			
14	41	29			
20	59	108			
26	76	<2			
31	91	<2			
37	108	<2			
43	126	<2			
49	144	143			
54	156	96			
60	169	26			
66	181	<2			
72	193	36			
77	203	72			
83	215	<2			
89	227	<2			
94	238	<2			
100	250	80			
106	262	83			
112	274	<2			
118	286	245			
123	296	<2			
129	309	<2			
135	322	<2			
140	333	88			
146	346	37			
152	359	<2			
158	372	<2			
164	385	<2			
169	396	85			
175	409	16			
181	422	<2			
186	433	209			
192	446	12			
198	459	26	1		
204	469	31	1		
209	477	107	1		
215	488	52	1		
221	498	15			
227	508	<2	1		
232	516	58	1		
238	526	13			
244	537	<2			
250	547	240	1		
255	555	<2	1		
261	565	114	1		
267	576	<2	1		
272	586	<2	1		
278	594	68	2		
284	604	<2	1		
290	613	218	1		
295	620	<2			
301	629	<2			
307	637	<2			
313	645	55	1		
319	654	<2	1		
324	661	32	1		
330	669	31	5		
336	677	13	<1		
341	684	<2	1		
347	693	217	1		
353	701	27			
359	709	<2			
364	716	<2			
370	725	<2			
376	733	91	1		
382	741	<2	1		
387	748	100	1		
393	757	146	1		
399	767	<2	1		
405	780	59	1		
410	791	<2	1		
416	804	<2			
422	817	104			

Hydrocarbon sample (#058) collected during pass.
Hydrocarbon sample (#260) collected at 1127 m.

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 19 ...CONTINUED
TIME 13:02 EST
START 560900E,4741800N

JUNE 13,1982
VERTICAL SPIRAL 15 KM DOWNWIND
VARIABLE ALTITUDE
END 560900E,4741800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
427		828	<2		
433		841	32	1	
439		854	51	1	
445		867	<2	1	
451		880	<2	1	
456		891	66	<1	
462		904	<2	<1	
468		918	<2	<1	
473		931	169	<1	
479		948	52		
485		965	31		
491		981	<2		
496		995	<2	<1	
502		1012	282	<1	
508		1029	<2	<1	
514		1045	108	<1	
519		1059	18	1	

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 20
TIME 13:12 EST
START 560900E,4741800N

JUNE 13,1982
VERTICAL SPIRAL 15 KM DOWNWIND
VARIABLE ALTITUDE
END 560900E,4741800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
		1067		1	
	6	1052	12	1	
	11	1039	70	1	
	17	1024	<2	<1	
	23	1009	<2	<1	
	29	993	<2		
	34	981	197	<1	
	40	965	<2	<1	
	46	950	<2	<1	
	52	935	331	<1	
	57	922	<2		
	63	911	13	<1	
	69	904	<2		
	74	898	100		
	80	890	<2		
	86	883	105	<1	
	92	876	17	1	
	98	869	<2	1	
	103	863	82	1	
	109	855	70	1	
	115	848	<2	1	
	120	842	<2	1	
	126	835	52	1	
	132	827	<2		
	138	820	7		
	144	813	91	1	
	149	807	30	1	
	155	800	11	1	
	161	792	11	1	
	166	786	<2	1	
	172	779	69	1	
	178	772	54	1	
	184	765	<2		
	189	758	66		
	195	748	23		
	201	739	8	1	
	207	730	125	1	
	212	723	30	1	
	218	714	<2	1	
	224	704	32	1	
	230	695	<2	1	
	235	688	9	1	
	241	679		1	
	247	669	<2		
	255	657	100		
	261	648	31	1	
	267	639	14	2	
	273	630		1	
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	284	613	71	1	
	290	606	<2	1	
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	301	593	67	1	
	307	586	<2		
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	319	572	<2		
	324	566	220	1	
	330	560	29	1	
	336	553	<2	1	
	341	547	60	1	
	347	540	<2	1	
	353	533	<2	1	
	359	526	75		
	364	520	106		
	370	514	<2		
	376	507	<2	1	
	382	500	<2	1	
	387	494	170	2	
	393	487	32	1	
	399	480	<2		
	405	473		1	
	410	468	<2	1	
	416	461	87	1	
	422	451	<2	1	

PAN sample collected during descent.

BLANKS ARE MISSING DATA

1982 NANTICOKE FIELD STUDY

RUN 8
PASS 20 ...CONTINUED
TIME 13:12 EST
START 560900E,4741800N

JUNE 13,1982
VERTICAL SPIRAL 15 KM DOWNWIND
VARIABLE ALTITUDE
END 560900E,4741800N

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
427		441	106		
433		429	<2		
439		417	46		
445		404	<2		
451		392	<2	1	
456		382	202	1	
462		370		1	
468		358	<2	1	
473		348	55		
479		335	69	1	
485		323	<2		
491		311	194		
496		303	<2	1	
502		297	<2	1	
508		291	67	1	
514		285	108	1	
519		280	<2		
525		275	<2		
531		269	11	1	
537		263	10	1	
542		258	66		
548		252	31	5	
554		246	<2	2	
560		240	83		
565		235	72		
571		229	<2		
577		224	<2		
582		219	59		
588		213	13		
594		207	91		
600		201	95		
606		195	<2		
611		190	86		
617		184	34		
623		179	<2		
628		174	<2		
634		168	85		

TIME s	DIST m	ALT m	SO2 ppb	SO4 ppb	O3 ppb
640		162	30		
646		156	<2		
652		150	<2		
657		145	46		
663		139	9		

BLANKS ARE MISSING DATA

APPENDIX B

SAMPLING SUMMARY

1982 NANTICOKE FIELD STUDY : SUMMARY OF AIRBORNE SAMPLING

PASS	TYPE	TIME HH:MM	ALT M	HDG DEG	MERCATOR COORDINATES START EASTING	START NORTHING	STOP EASTING	STOP NORTHING
	RUN 1	JUNE 7,1982						
1	BACKGROUND	14:32	0	261	567200E	4746200N	484300E	4732900N
2	BACKGROUND	15:34	0	75	484000E	4734000N	564700E	4754400N
	RUN 2	JUNE 8,1982						
1	INPLUME	13:59	305	278	586800E	4745600N	578500E	4746700N
2	INPLUME	14:05	610	98	578500E	4746700N	598300E	4743500N
3	INPLUME	14:17	763	278	598300E	4743500N	578500E	4746700N
4	INPLUME	14:32	610	115	582700E	4754400N	603100E	4744700N
5	INPLUME	14:41	763	295	603100E	4744700N	582700E	4754400N
	RUN 3	JUNE 9,1982						
1	INPLUME	10:25	229	343	569800E	4737300N	567000E	4746900N
2	INPLUME	10:31	458	163	567000E	4746900N	569800E	4737300N
3	INPLUME	10:37	763	343	569800E	4737300N	567000E	4746900N
4	INPLUME	10:42	915	163	567000E	4746900N	569800E	4737300N
5	INPLUME	10:47	839	343	569800E	4737300N	567000E	4746900N
6	INPLUME	10:55	458	164	560000E	4745000N	562000E	4737800N
7	INPLUME	11:02	610	344	562000E	4737800N	560000E	4745000N
8	INPLUME	11:08	763	164	560000E	4745000N	562700E	4735800N
9	INPLUME	11:18	458	343	559700E	4732800N	557500E	4740400N
10	INPLUME	11:22	610	163	557500E	4740400N	559700E	4732800N
11	INPLUME	11:26	610	343	559700E	4732800N	555900E	4746200N
12	INPLUME	11:34	763	163	555900E	4746200N	559700E	4732800N
13	INPLUME	11:51	458	356	538800E	4724800N	537700E	4753700N
14	INPLUME	12:03	610	177	537700E	4753700N	537900E	4729200N

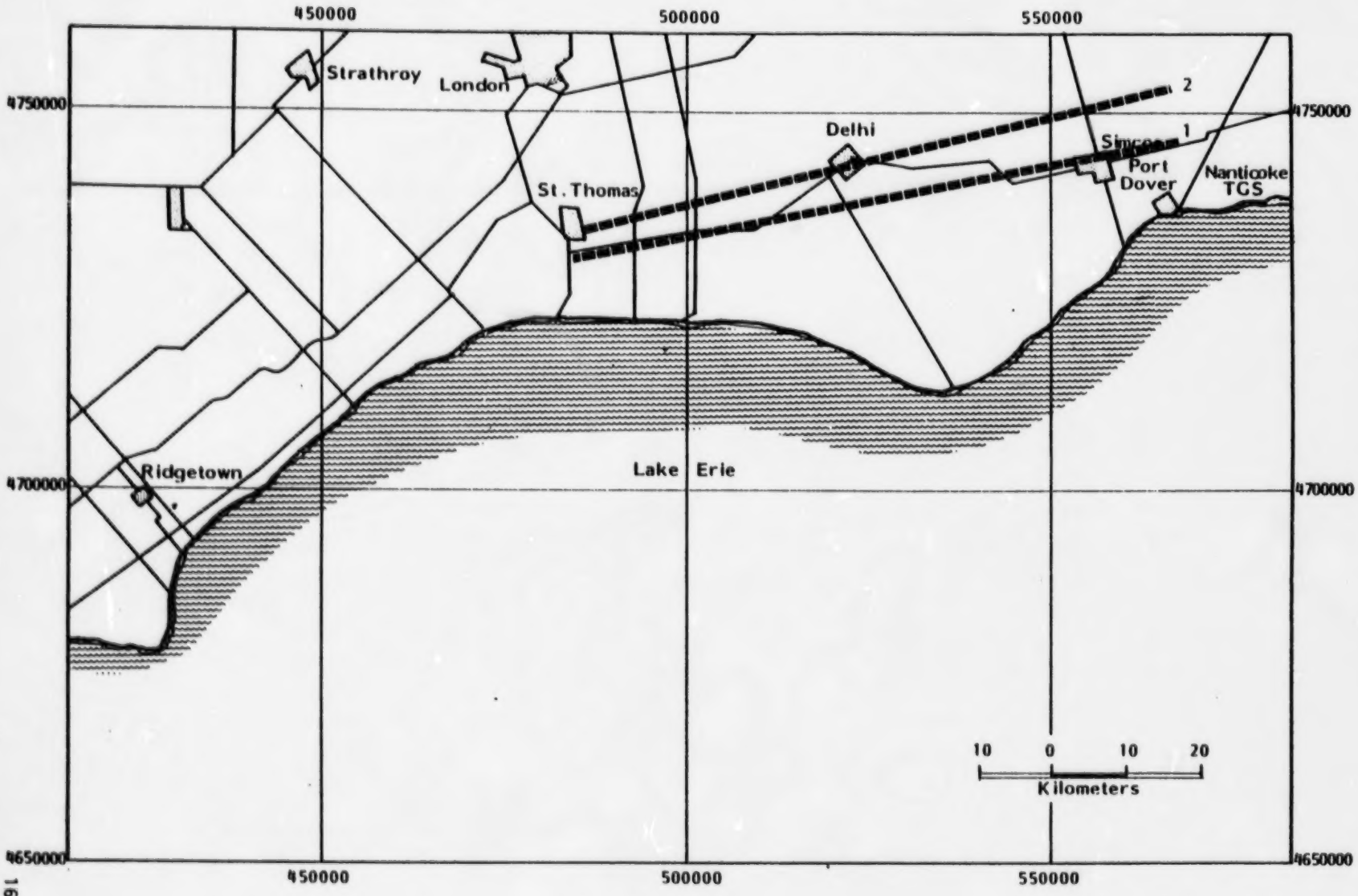
1982 NANTICOKE FIELD STUDY : SUMMARY OF AIRBORNE SAMPLING

PASS	TYPE	TIME HH:MM	ALT M	HDG DEG	MERCATOR COORDINATES START EASTING	START NORTHING	STOP EASTING	STOP NORTHING
	RUN 4	JUNE 9,1982						
1	BACKGROUND	15:18	0	82	578300E	4740500N	613200E	4746200N
2	BACKGROUND	15:42	0	262	613200E	4746200N	578300E	4740500N
	RUN 5	JUNE 10,1982						
1	INPLUME	15:55	458	343	587700E	4740800N	586500E	4745400N
2	INPLUME	16:00	610	163	586500E	4745400N	587700E	4740800N
	RUN 6	JUNE 11,1982						
1	SPIRAL	9:18	0	0	571900E	4753100N	571900E	4753100N
2	SPIRAL	9:57	0	0	571900E	4753100N	571900E	4753100N
3	BACKGROUND	11:56	0	81	583700E	4741800N	613200E	4746200N
4	BACKGROUND	12:15	0	261	613200E	4746200N	583700E	4741800N
5	BACKGROUND	13:23	0	267	572300E	4748200N	524600E	4744600N
6	BACKGROUND	13:50	0	87	524600E	4744600N	572300E	4748200N
7	SPIRAL	15:28	0	0	571900E	4753100N	571900E	4753100N
8	SPIRAL	15:48	0	0	571900E	4753100N	571900E	4753100N
9	INPLUME	16:42	305	98	578500E	4746600N	586400E	4745400N
10	INPLUME	16:45	458	278	586400E	4745400N	578500E	4746600N
11	INPLUME	16:55	610	98	578500E	4746600N	586400E	4745400N
12	INPLUME	17:01	763	278	586400E	4745400N	578500E	4746600N
13	INPLUME	17:06	610	98	578500E	4746600N	586400E	4745400N
14	INPLUME	17:10	610	281	586400E	4745400N	572400E	4748200N
15	INPLUME	17:21	153	295	593200E	4749400N	578300E	4756400N
16	INPLUME	17:31	458	118	578600E	4758500N	592500E	4751200N
17	INPLUME	17:36	610	295	593200E	4749400N	570800E	4760000N
18	INPLUME	17:43	763	115	570800E	4760000N	593200E	4749400N
19	INPLUME	17:49	458	295	593200E	4749400N	570800E	4760000N
20	INPLUME	17:58	305	115	570800E	4760000N	593200E	4749400N

1982 NANTICOKE FIELD STUDY : SUMMARY OF AIRBORNE SAMPLING

PASS	TYPE	TIME HH:MM	ALT M	HDG DEG	MERCATOR COORDINATES START EASTING	START NORTHING	STOP EASTING	STOP NORTHING
	RUN 7	JUNE 12,1982						
1	SPIRAL	5:44	0	0	571900E	4753100N	571900E	4753100N
2	SPIRAL	5:55	0	0	571900E	4753100N	571900E	4753100N
3	SPIRAL	8:04	0	0	571900E	4753100N	571900E	4753100N
4	BACKGROUND	9:58	0	275	576600E	4740200N	483900E	4745800N
5	BACKGROUND	12:00	0	88	483900E	4745800N	572300E	4748200N
6	INPLUME	13:18	153	278	586400E	4745300N	578500E	4746600N
8	INPLUME	13:23	229	98	578500E	4746600N	588900E	4745100N
9	INPLUME	13:27	305	278	588900E	4745100N	578500E	4746600N
10	INPLUME	13:32	458	98	578500E	4746600N	594500E	4744200N
11	INPLUME	13:37	610	285	595000E	4742400N	578500E	4746600N
12	INPLUME	13:41	534	98	578500E	4746600N	590300E	4744700N
13	INPLUME	13:44	381	278	590300E	4744700N	578500E	4746600N
14	INPLUME	13:51	381	106	588100E	4756100N	605500E	4751200N
15	INPLUME	13:58	305	286	605500E	4751200N	588100E	4756100N
16	INPLUME	14:06	229	106	588100E	4756100N	605500E	4751200N
17	INPLUME	14:15	153	286	605500E	4751200N	588100E	4756100N
18	BACKGROUND	14:37	153	152	618300E	4772600N	623700E	4762300N
19	BACKGROUND	14:46	229	341	623700E	4762300N	616900E	4781800N
	RUN 8	JUNE 13,1982						
1	INPLUME	8:31	229	312	586400E	4745400N	576000E	4754800N
2	INPLUME	8:37	305	132	576000E	4754800N	586400E	4745400N
3	INPLUME	8:47	305	278	586400E	4745400N	578500E	4746600N
4	INPLUME	8:52	305	98	578500E	4746600N	588900E	4745100N
5	INPLUME	8:57	381	278	588900E	4745100N	578500E	4746600N
6	INPLUME	9:03	305	98	578500E	4746600N	588900E	4745100N
7	INPLUME	9:14	305	295	593100E	4749300N	582400E	4754500N
8	INPLUME	9:25	381	115	582400E	4754500N	590600E	4750500N
10	INPLUME	9:34	381	295	593100E	4749400N	585200E	4753100N
11	INPLUME	9:41	458	115	585200E	4753100N	593100E	4749400N
12	INPLUME	9:49	534	295	593800E	4749000N	585200E	4753100N
13	INPLUME	9:56	229	115	585200E	4753100N	593100E	4749400N
14	INPLUME	10:02	305	314	605400E	4766600N	597200E	4774800N
15	INPLUME	10:09	381	134	597200E	4774800N	612000E	4759900N
16	INPLUME	10:23	305	295	603300E	4757800N	590400E	4763800N
17	INPLUME	10:30	381	115	590400E	4763800N	603300E	4757800N
18	INPLUME	10:37	381	42	599400E	4760600N	604900E	4767000N
19	SPIRAL	13:02	0	0	560900E	4741800N	560900E	4741800N
20	SPIRAL	13:12	0	0	560900E	4741800N	560900E	4741800N

C-341



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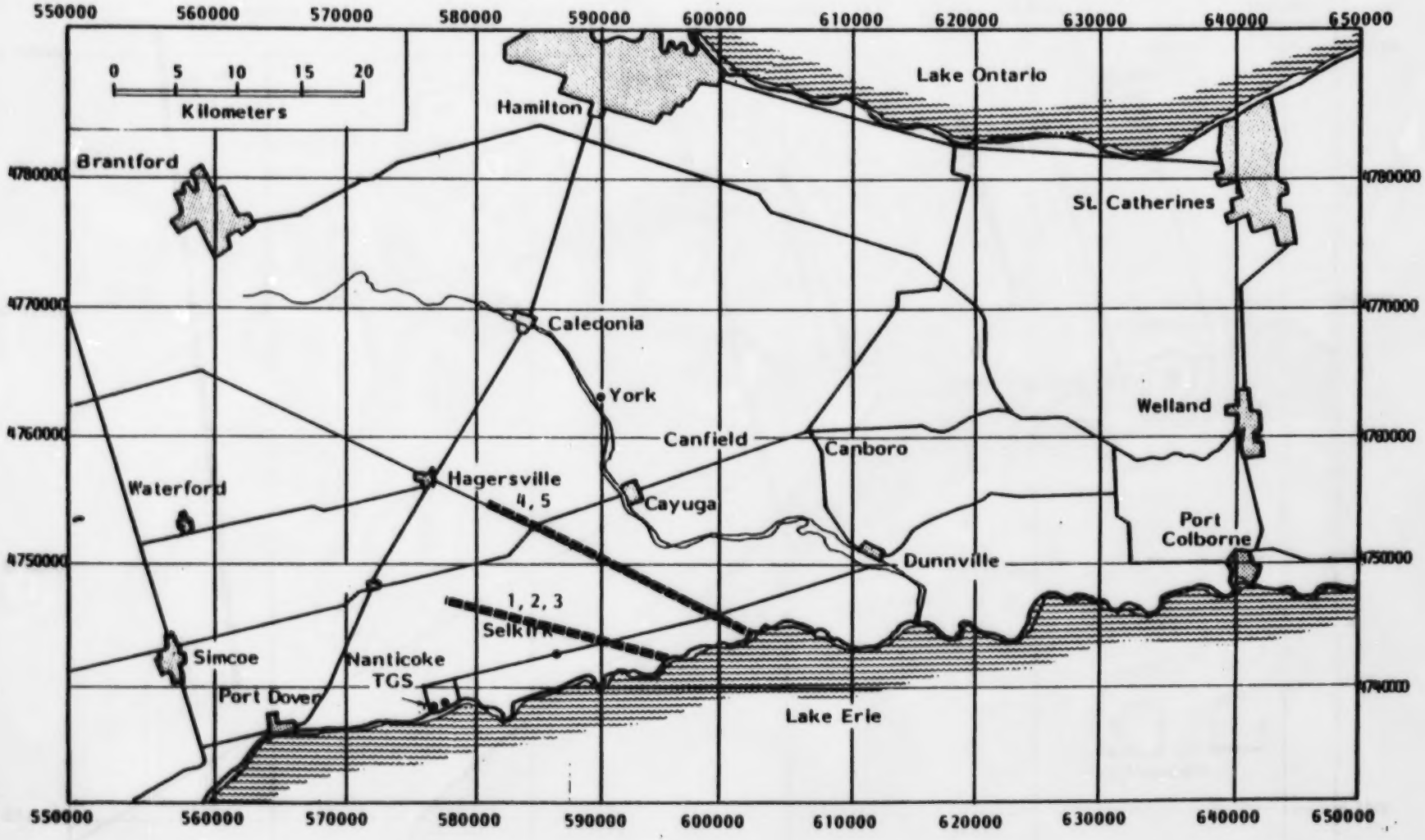
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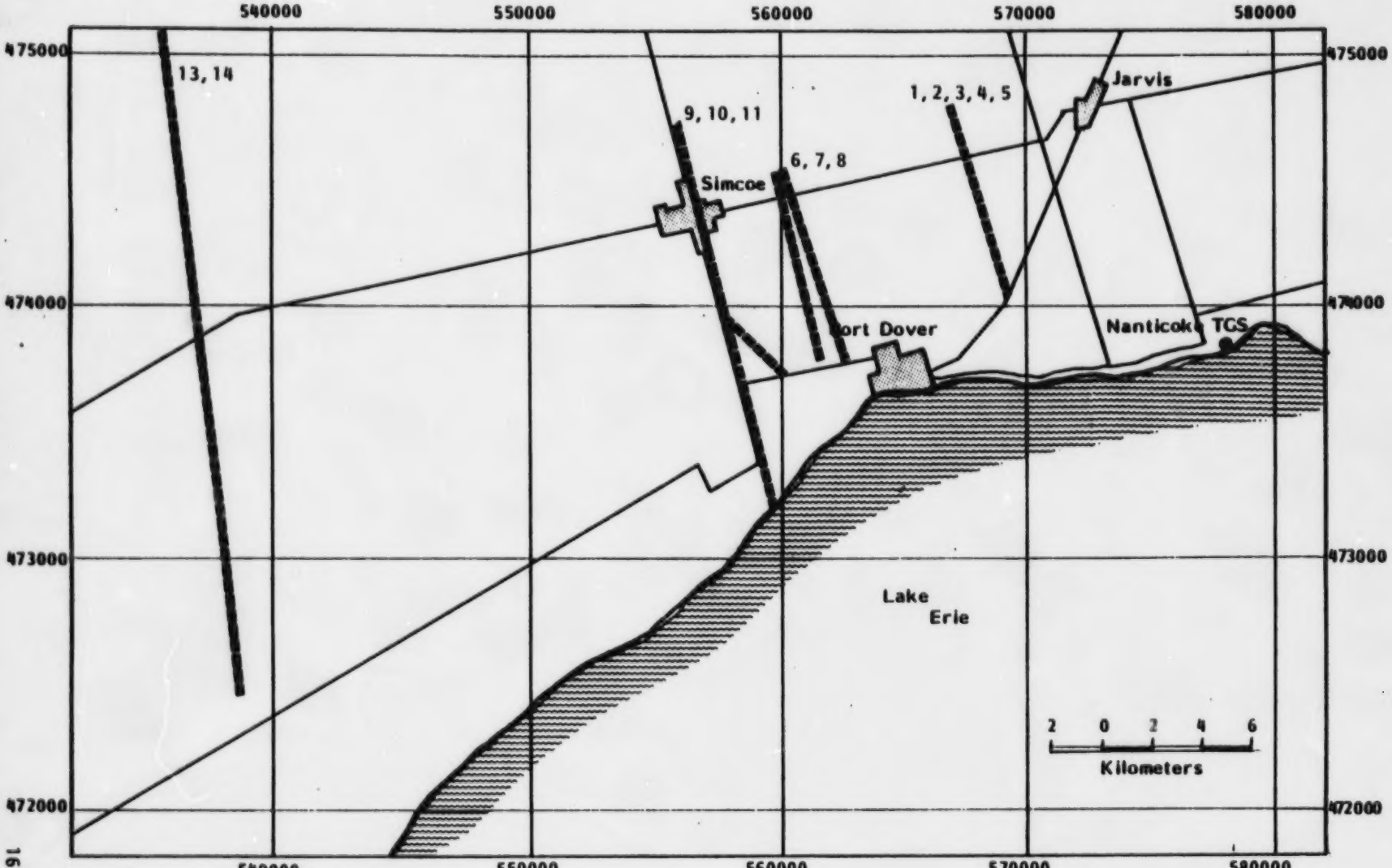
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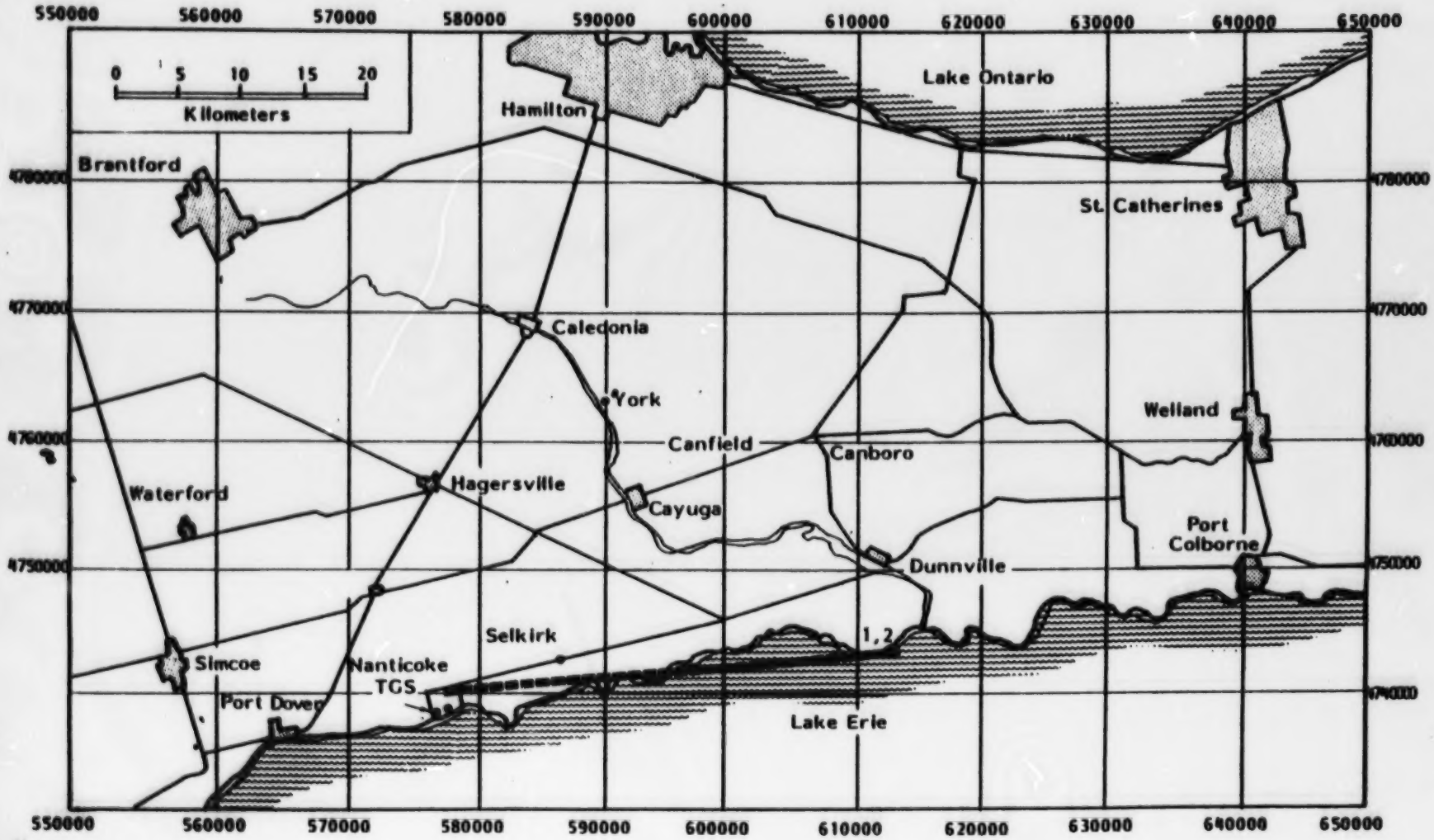
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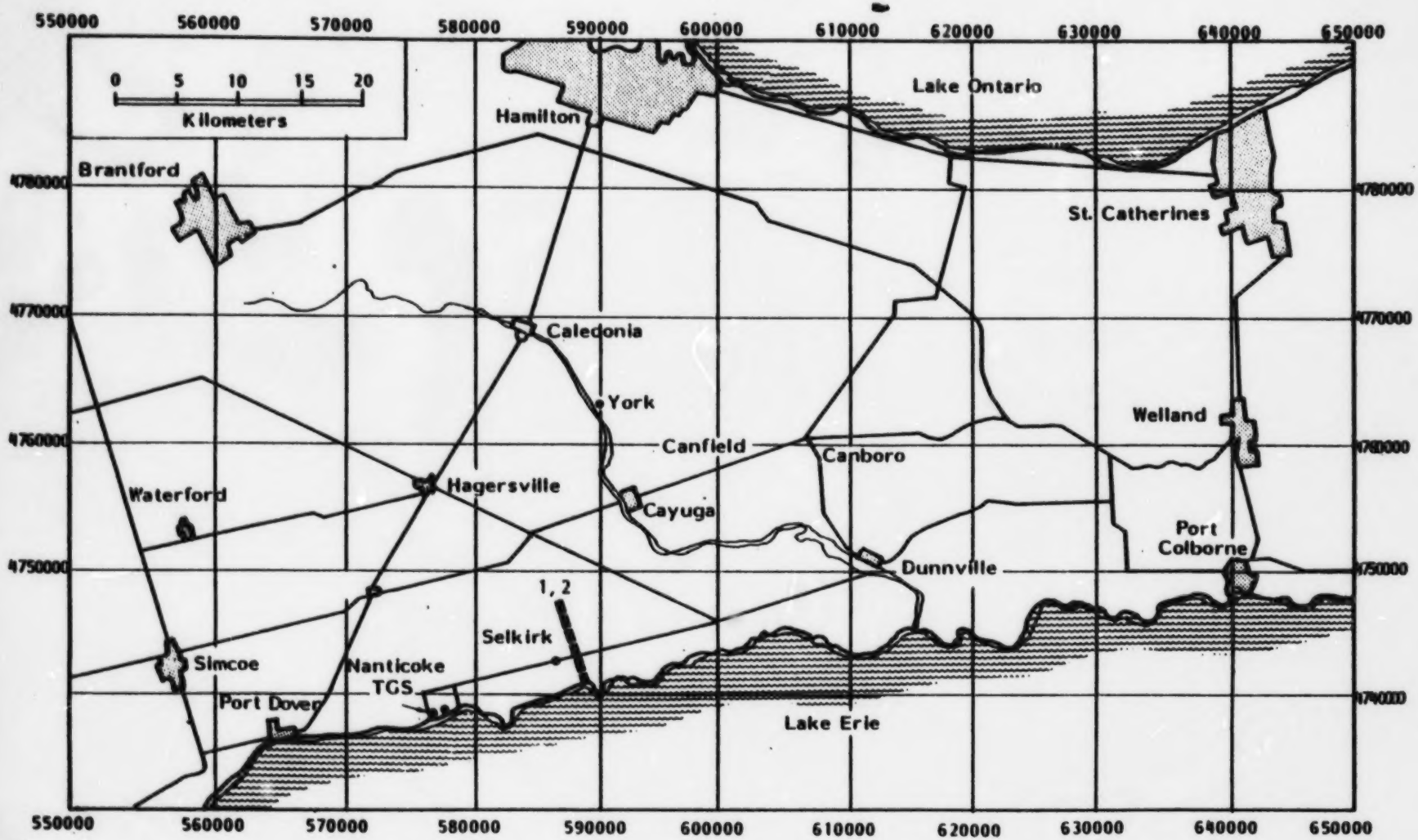
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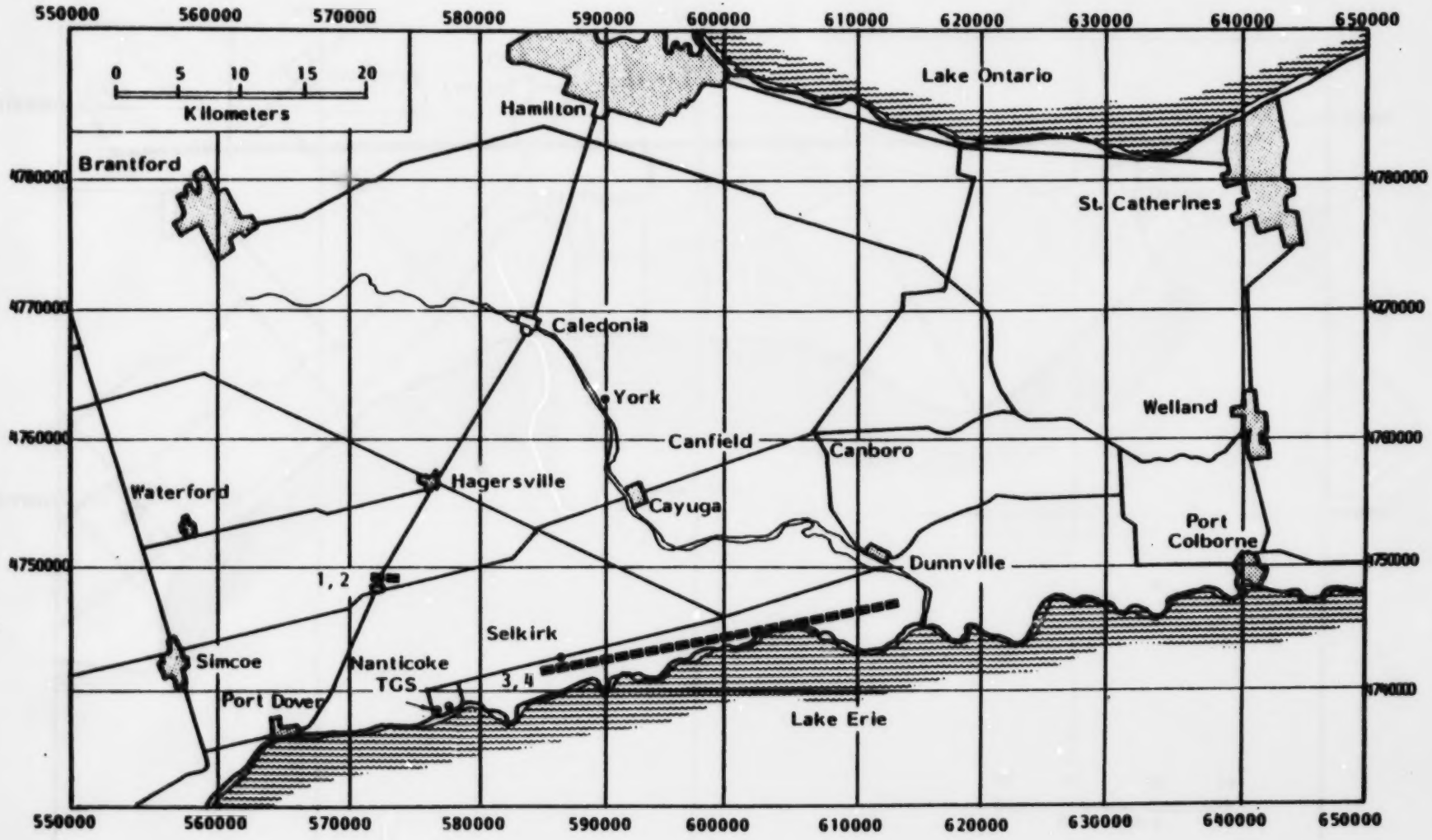
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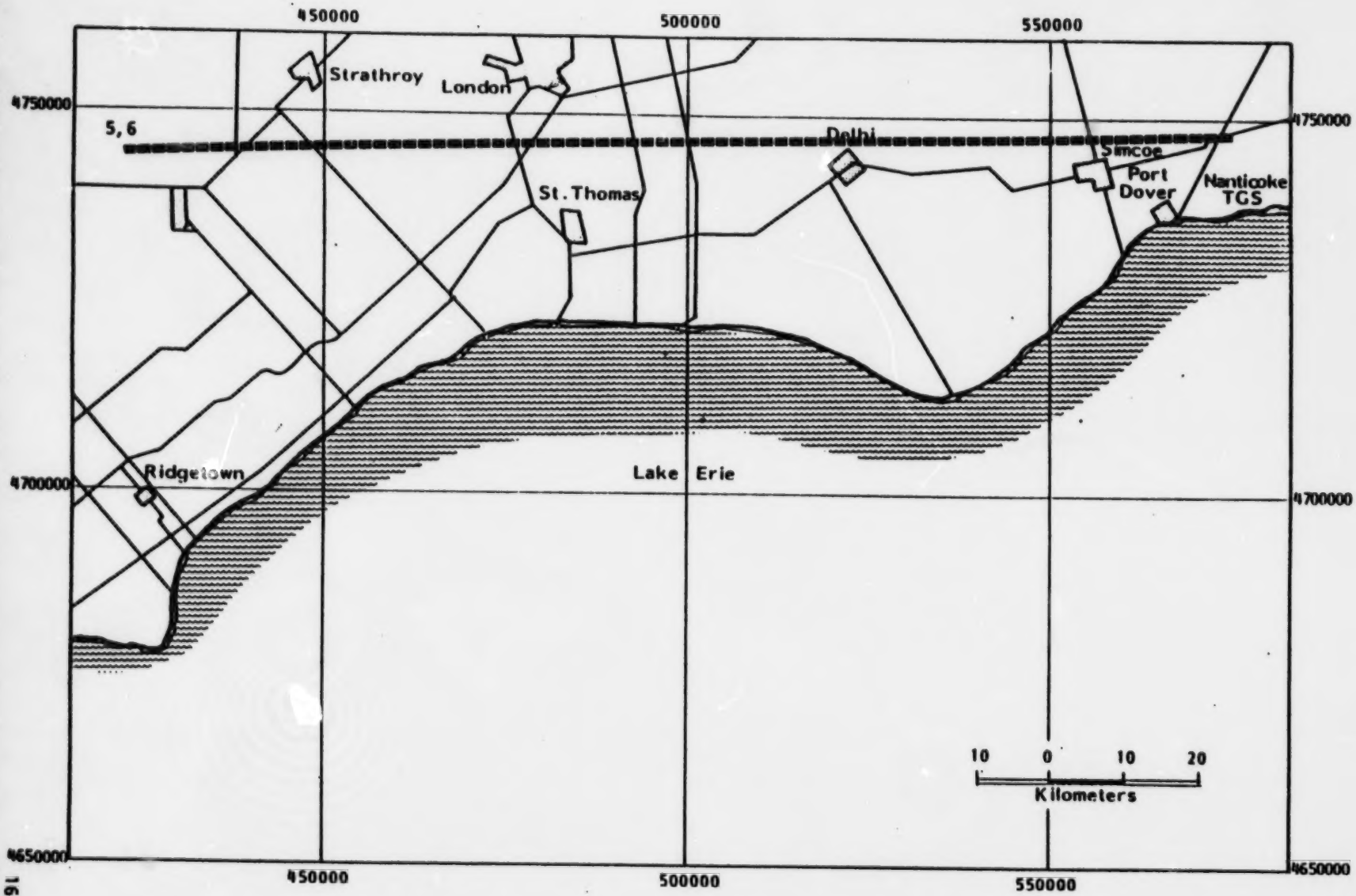
C-341



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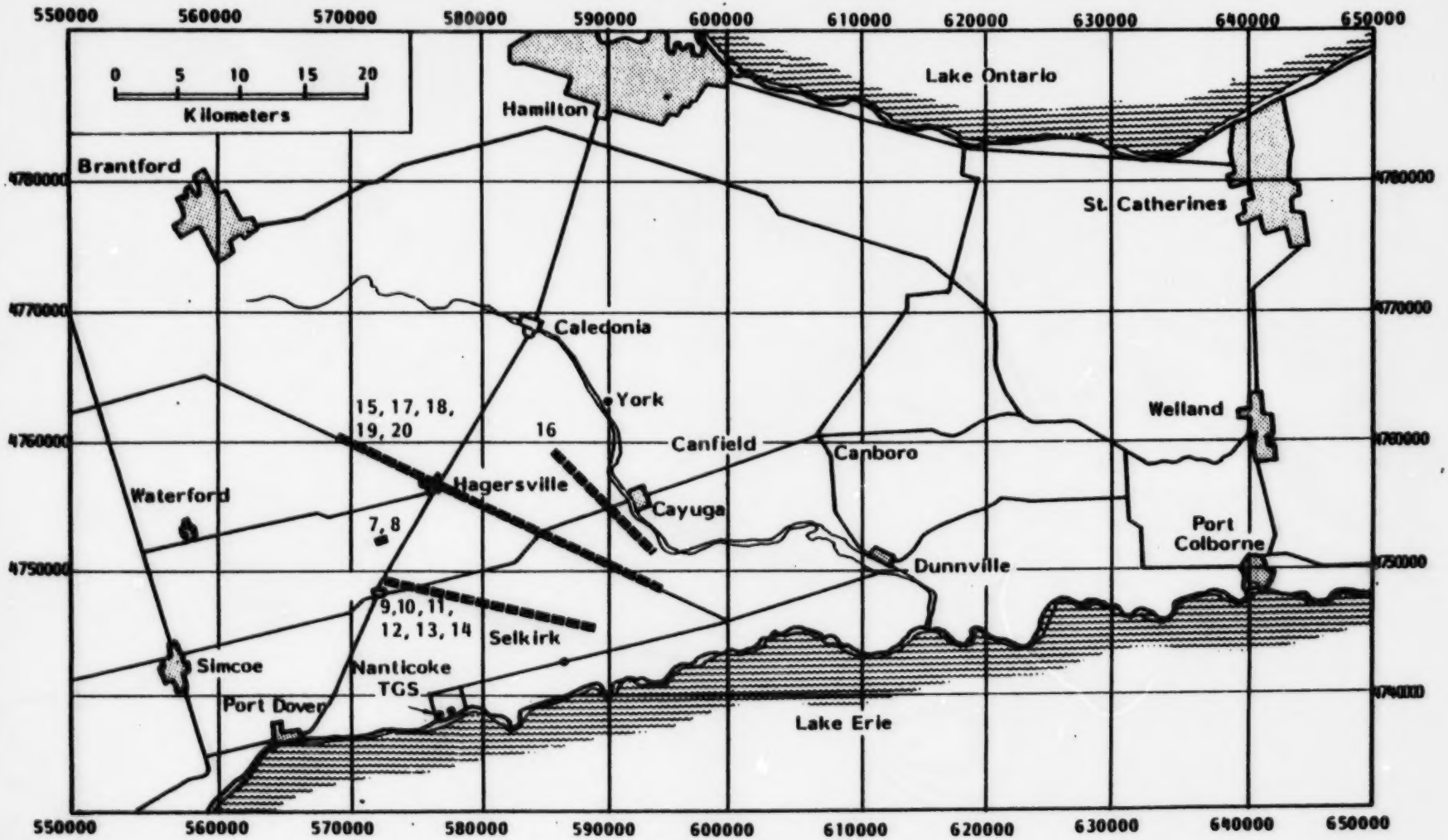
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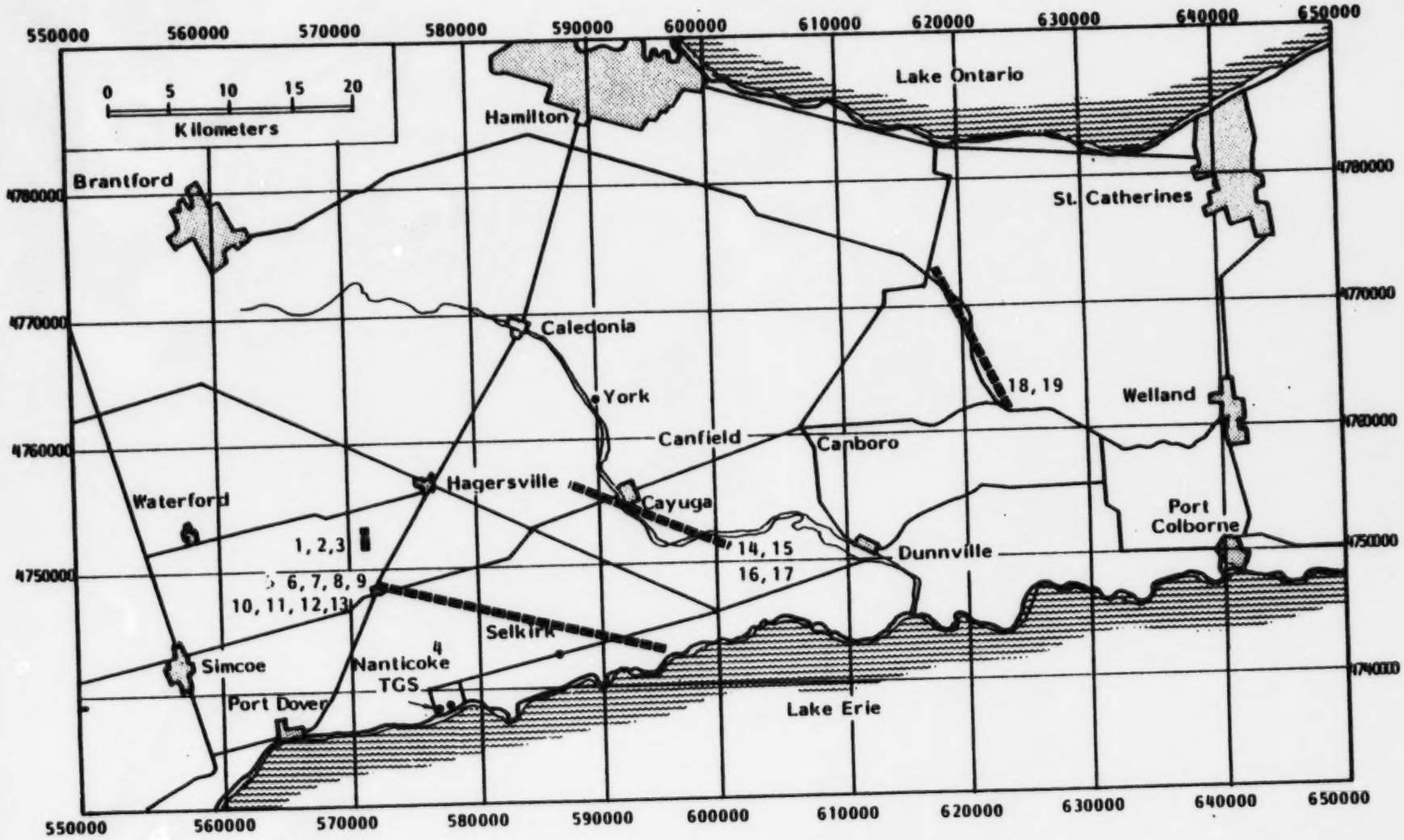
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1, 2, 3
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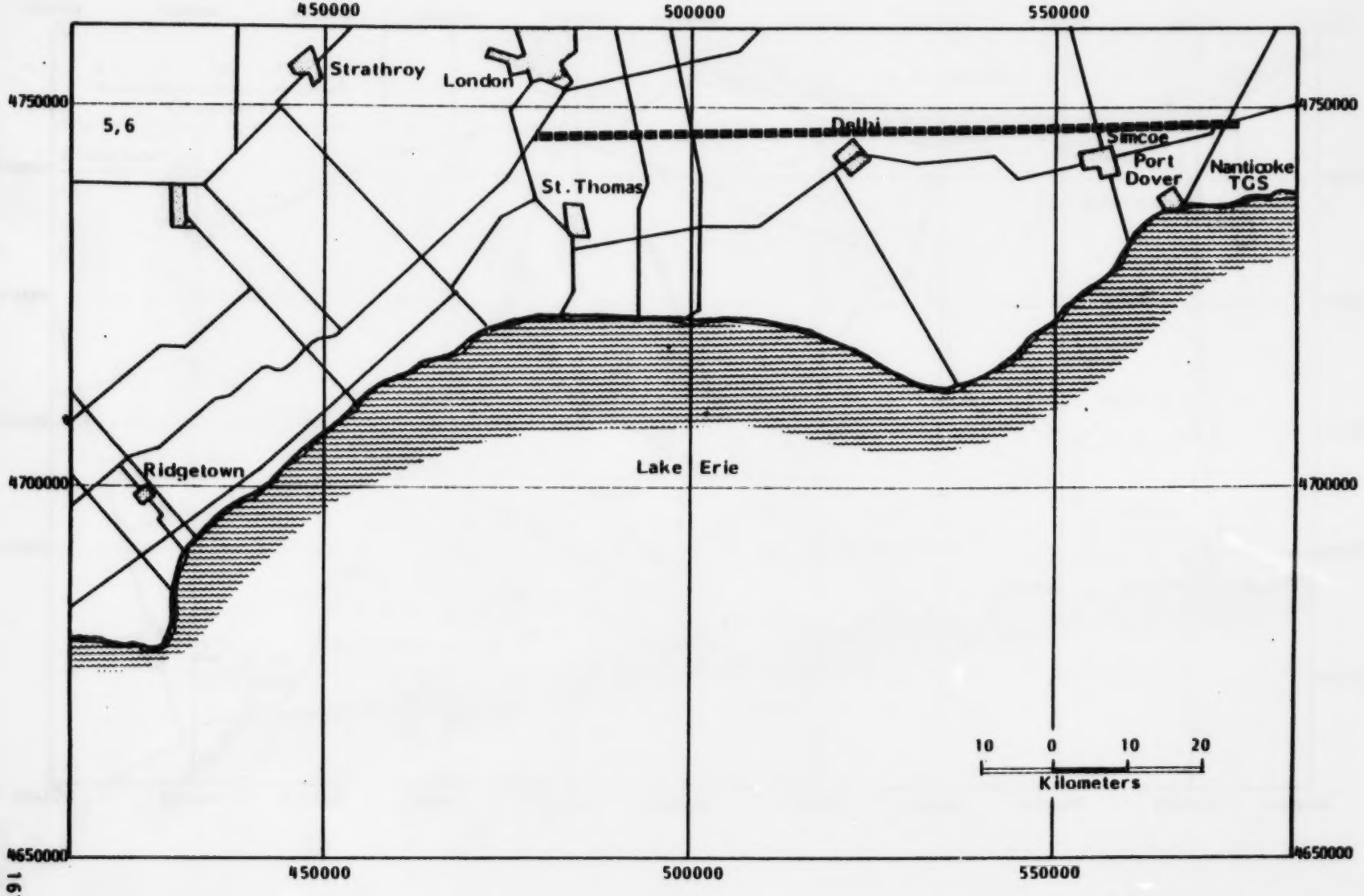
161268 RD

C-341



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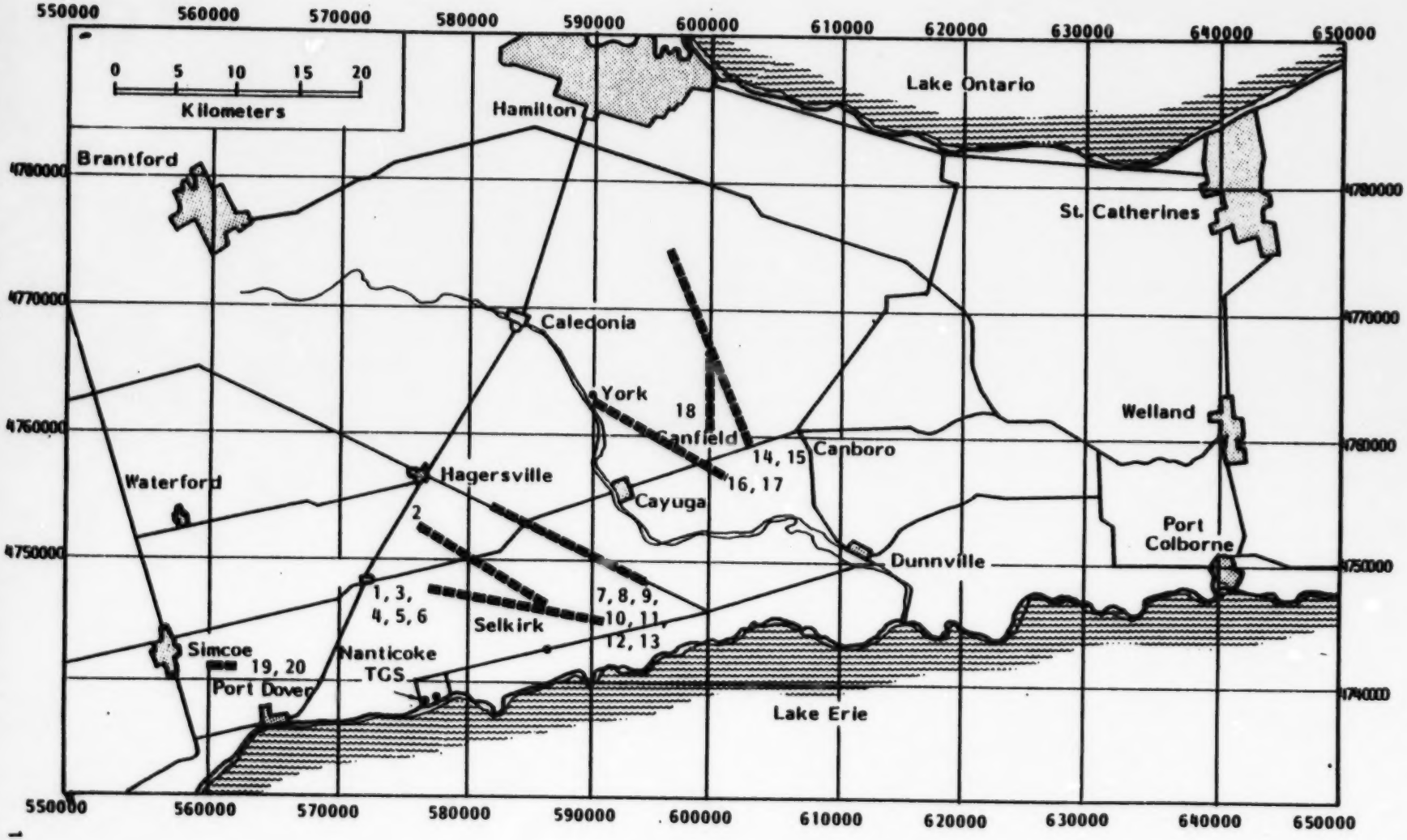
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Welland
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Dunnville
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7, 8, 9, 10, 11, 12, 13
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Simcoe
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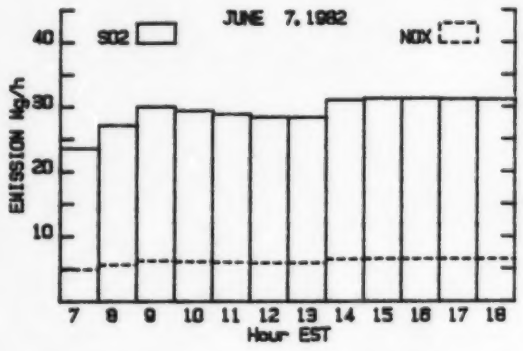
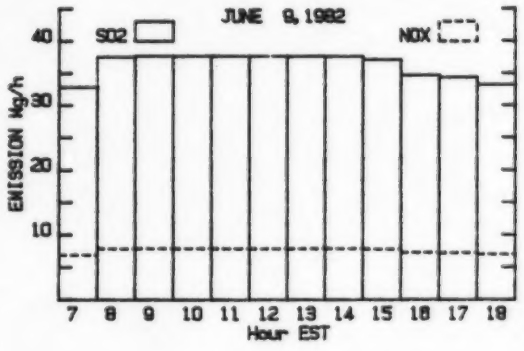
161065 RD

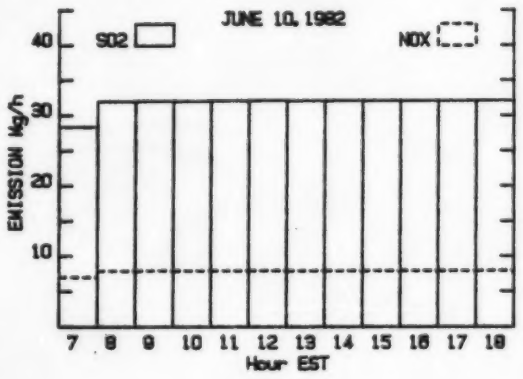
APPENDIX C

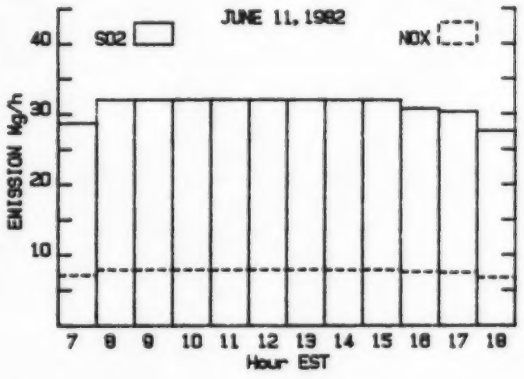
STATION EMISSIONS

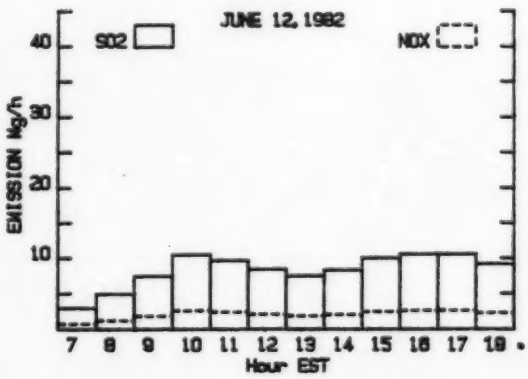
1982 NANTICOKE FIELD STUDY
HOURLY EMISSION DATA

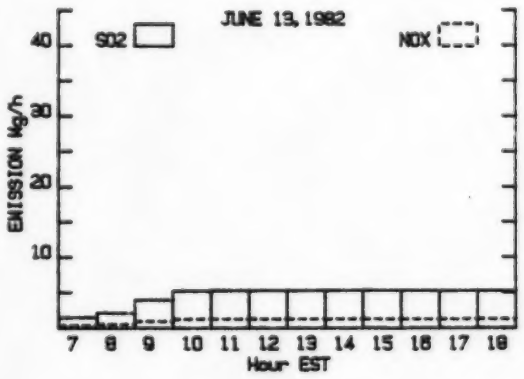












POOR

QUALITY

ORIGINAL